

TECHNOLOGY TRENDS

Server Load Balancing in Today's Web-enabled enterprises

As more and more businesses have turned to using Web-based applications from generating customer sales and communications to internal HR and sales applications, the spotlight has increased on IP networks to provide reliable and timely communication links to support mission-critical applications. With the resultant boom in TCP/IP traffic generated by these applications, new network traffic management devices have emerged, supplying smart content switching capabilities that monitor systems and distribute incoming traffic for optimal response.

Web, content, or Layer 4-7 switches, provide capability to intelligently route Internet traffic to application servers using Load Balancing techniques. The more advanced Web switches can provide Layer 7 traffic routing by examining IP packets in more detail and forwarding based on HTTP header, URL, and cookies. For global companies, Web switches can distribute traffic to servers located anywhere in the world, providing users with the best possible response times and unmatched overall reliability.

On the scalability and Management front, organizations have invested for additional servers and implementing redundant systems to provide faster response times, leading to better customer satisfaction. Effective server management requires control of IP addressing where multiple virtual IP (VIP) addresses are being used for server farms.

As enterprises rely on Web-enabled applications to communicate and transact with their customers, these applications by definition become mission critical. Obstacles to accessing applications due to server latency, downtime or errors are therefore unacceptable. A widely cited statistic concerning e-commerce transactions shows as to how response times greater than 7 seconds result in loss of 30% of prospective customers. For other applications such as online banking and manufacturing systems, slow response times leads to significant undesired business disruption. The ability for Web switches to monitor server health and performance and respond by redirecting requests to better performing servers is a crucial component to these.

Features that have made Web servers easy to deploy and ubiquitous in the growth of the Internet have also introduced security vulnerabilities. Public access to Web services has raised the specter of Denial of Service (DoS) attacks intended to overwhelm, compromise and paralyze computing infrastructure. Being able to stop and thwart DoS attacks is the difference between successful online implementations with high QoS and low customer satisfaction due to slow response times caused by timed out requests. In addition, unauthorized users can hijack confidential data off of IP addresses made publicly available through broadcasts. Web site administrators need to be able to hide IP addresses to protect themselves from unauthorized access.

This is where Server Load Balancing (SLB) can help. Serially extending installed servers adds more computing power, allowing more applications to be hosted. SLB works together with enterprise server farms to maximize and protect IT investments and deliver high availability for mission critical applications.

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Quote of the Month

*The higher we are placed,
the more humbly we should walk.*

Marcus Tullius Cicero



MRO-TEK International Headquarters
Hebbal, Bangalore

RAD Unveils Market's First Complete Solution for Maximizing Ethernet Payload Over Low Speed Lines

Next-Generation PDH Standards Enable Efficient Ethernet Service Delivery over Bonded E1/T1 Circuits as well as WiMAX and IP DSLAM Backhauling

RAD Data Communications has unveiled the market's first complete solution for delivering maximum Ethernet bandwidth over low-speed E1/T1 PDH lines. RAD's solution pairs its **Egate-100 Gigabit Ethernet aggregation gateway** with its **RICi-16 Network Termination Unit (NTU)**. "PDH is a veteran technology that was designed before the advent of Ethernet, when data rates were slow in comparison to today's needs," explains Ami Barayev, Product Line Manager at RAD Data Communications. "But given that PDH reaches virtually everywhere, it can, with bonded E1/T1 circuit technology, be turned into an excellent Ethernet transport mechanism anywhere over the service path, both for incumbents that wish to use the deployed infrastructure for new Ethernet services and alternative operators whose fiber networks are not extensive enough to reach all potential customers (off-net)."

"The solution is also ideal for backhaul of WiMAX traffic as well as IP DSLAMs extension," Barayev adds. Deployed at a carrier's central office, the Egate-100 transports Ethernet over STM-1/OC-3 links to the point of presence (POP). From there, the Ethernet traffic is sent over E1/T1 lines directly to the customer premises, where a RICi-16 has been deployed to serve as an Ethernet access device and as a demarcation point between public and private networks.

NG-PDH Encapsulation and Bonding

RAD's complete Ethernet-over-PDH solution incorporates the latest next generation PDH standards, including generic framing procedure (GFP), virtual concatenation (VCAT) and link capacity adjustment scheme (LCAS). These protocols allow service providers to dynamically allocate bandwidth to their customers by simply changing the number of E1 or T1 links bonded to the virtual group without having to replace the device or stop the service. By featuring such enhanced capabilities, the Egate-100 and RICi-16 offer numerous benefits, among which are scalable bandwidth provisioning, higher user throughput, better link utilization, minimal service disruptions and delays, and easy interoperability with third-party equipment.

"Service providers can now provide high-speed Ethernet when ordinary E3/T3 links do not exist or are otherwise unavailable," notes Barayev. "RAD's complete Ethernet-over-E1/T1 solution is a truly ingenious way to dramatically reduce capital (Capex) and operating expenses (Opex)," he concludes. RAD's Egate-100 is MEF-9 EPL (Ethernet Private Line) certified, and the RICi-16 is MEF-9 and MEF-14 EPL and EVPL (Ethernet Virtual Private Line) certified.

EtherAccess Product Line

RAD's Egate-100 and RICi-16 are elements of its EtherAccess® product line for delivering both Ethernet and emulated services over any infrastructure. EtherAccess is designed to provide carriers and their customers with a cost-effective, standards-based system for delivering a uniform user experience with verifiable Service Level Agreements (SLAs).

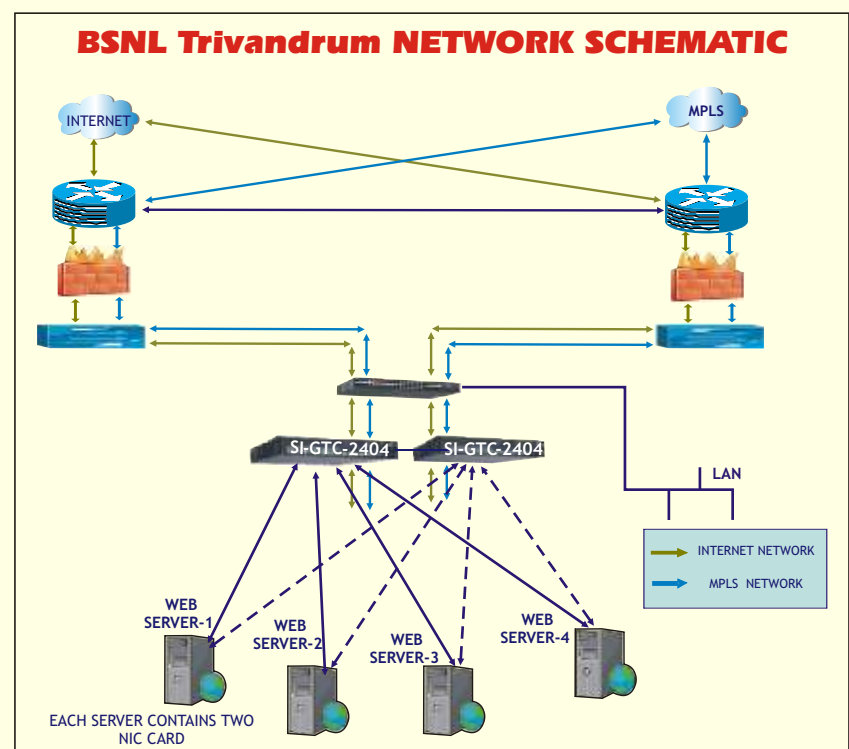
BSNL Trivandrum Server Load Balancing

MRO-TEK has designed and successfully implemented a solution for BSNL-Trivandrum with products from Foundry Networks (a division of Brocade) to provide Load Balancing of Web Servers hosted in their Data Centers which would be accessed by the general public through the Internet and Internal users of BSNL through the MPLS network.

BSNL-Trivandrum has two core routers which are connected to the Internet and MPLS cloud. These routers are configured with VRRP-E to have high availability during disaster to take care of the failure. These routers are in turn connected to the Web servers in the local area network with the Firewalls in between to prevent intrusions and attacks.

Without SLB solution in place the only option BSNL would have had is to cluster the servers. In which case the possibility of bad user experience was higher because there would be no health check in terms of L4 and L7 availability of the servers. By introducing Server Load Balancer, in this case the SERVER IRON GTC, we would be making the system intelligent enough to detect server failures, not just at L2 or L3 but at the Service and Application levels - thus negating the possibility of web site unavailability to the users at any given point in time unless both the core routers go down.

SERVER IRON GTC series is a highly compact and modular 3 slot system that provides high performance application switching and web optimization, enabling highly secure and ultra high availability, port expandability and performance upgradability to accommodate growth in application traffic. Two SERVER IRON GTCs are connected in ACTIVE ACTIVE mode with VRRP-E enabled in both the units, providing system redundancy. It can handle up to 5million concurrent sessions and 50,000 L4 connections per second with Application throughput of 2Gbps.



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MRO-TEK's Expanding Product Line

PCAT-02

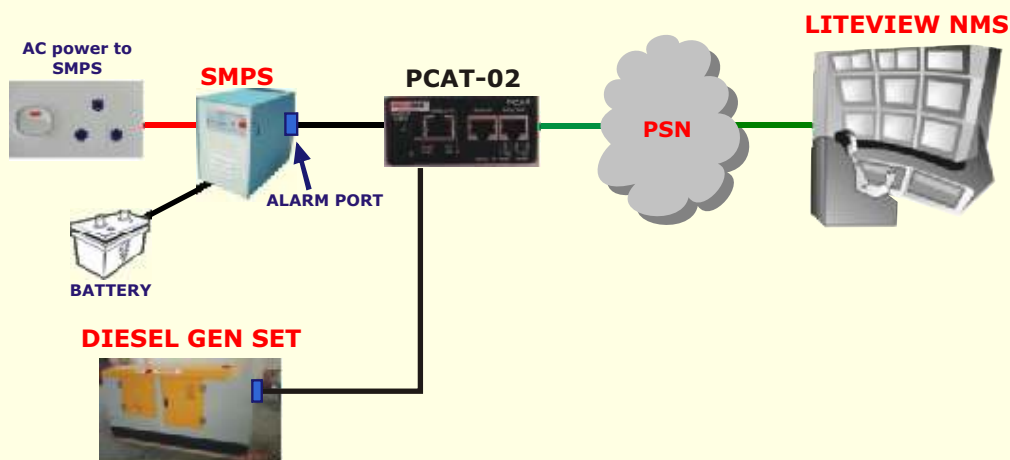
Alarm monitoring device



PCAT-02 is a managed equipment for monitoring and controlling unmanned site environment variables. It is used to sense the status changes of Power Supply, UPS, and Battery Power present in the site and activate the alternative resources available at the site such as Diesel generators on predetermined conditions and on demand from the Central NMS. Hence ensures the unmanned/undisturbed site functionality at any point in time.

Features:

- It has two RJ45 connectors, one for the Input Alarm monitoring and other for controlling the equipment such as Diesel Generators.
- Input Alarm connector is capable of monitoring status of three Alarm Relay Contacts
- Output Alarm connector is capable of providing two alarm relay contacts
- 10 BaseT Ethernet interface on the unit is used to send the alarm management information of various equipments to the Central Site NMS.
- The unit works on DC power in the range of 10V-60V DC



eSONA-8 ADVANCED

Ethernet Edge Access Multiplexer



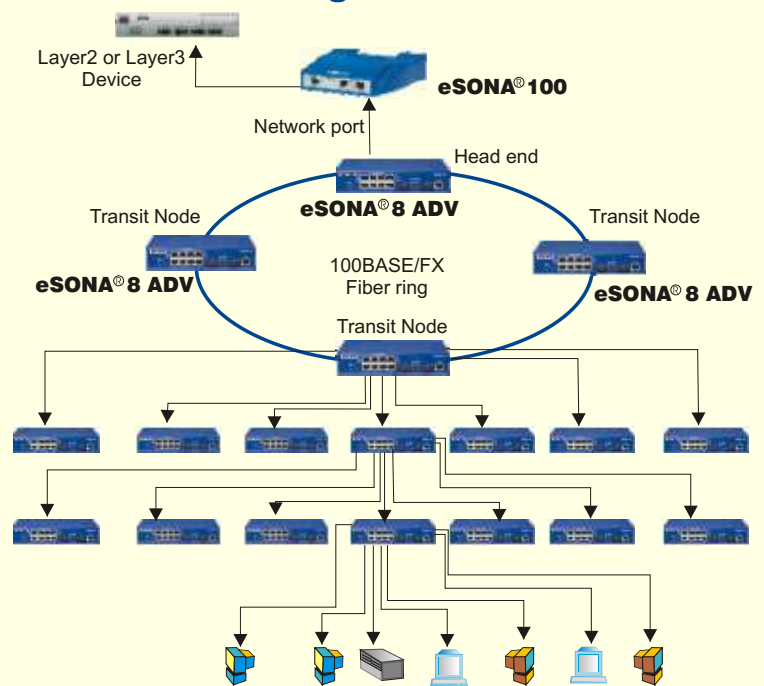
eSONA-8 ADV is an Ethernet Access Multiplexer that aggregates customer traffic from the Ethernet Access Ports to the Fiber/Copper Fast Ethernet Uplink Port. It delivers high performance and provides user security, Broadcast storm control.

It supports configurable VLAN Tagging/Stacking options, Rate Limiting and IEEE standard Ring Protection protocols in comparison with the earlier eSONA-8.

Features:

- 2 100 Base Ethernet ports (Copper/Fiber)
- 8 10/100 Base-T ports
- VLAN aware and VLAN unaware modes of operation
- Double tagging
- Port Isolation for user access security
- Per port granular ingress and egress rate control
- STP & RSTP for Ring failover mechanism
- SNMP Manageable
- Dying gasp detection

Ring Network

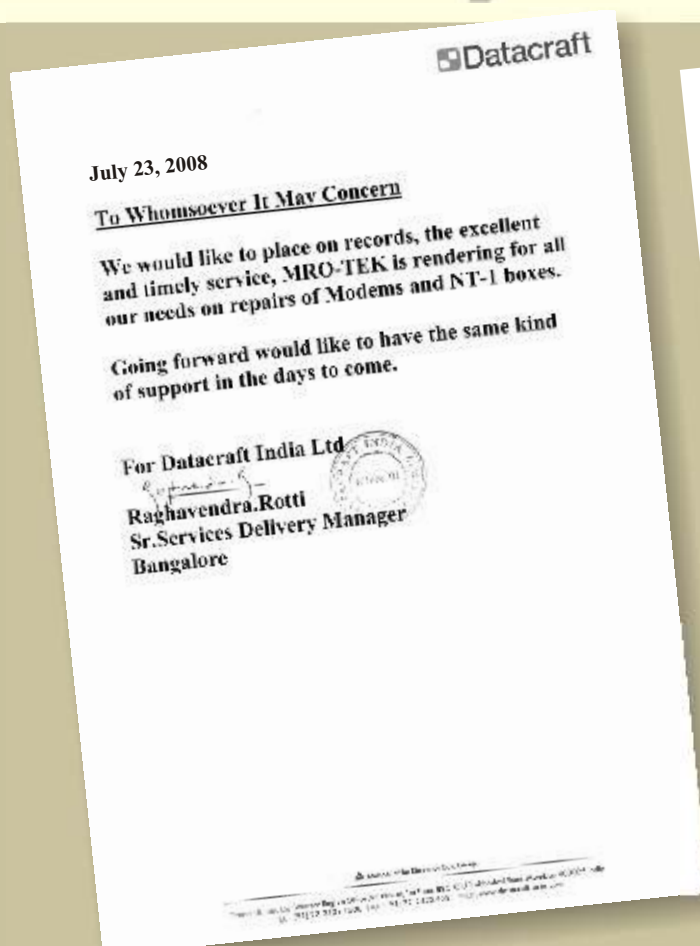


We've Earned Our Stripes

Awards and accolades, whether from our customers, business associates or industry peers, mean a lot to us. They inspire us to work harder and scale new heights of performance.

In this section, we are happy to acknowledge messages of appreciation from our customers Datacraft and JST.

Thank you for putting your trust on MRO-TEK. We assure you that we will continue to serve you and all our other customers with the same dedication, providing the best technology solutions and service support.



Taking Stock. Moving Forward.

RAD Award - 2008



Training for KLIA Executives



CONNECT QUIZ-19

1. What is the transfer rate of USB 2.0?
2. The name of Dr Douglas Engelbart is associated with which popular computer device?
3. In networking technology, what is the full form of 'LLU'?
4. Which of the following is not a type of computer memory : a. DIMM b. MIMM c. RIMM d. SIMM ?
5. In what year did Time Magazine name the personal computer the machine of the year?
6. What is the name given to the kind of image which users are required to look at and enter the letters seen in it when filling out information on the Internet as a method of identifying humans from computers?
7. Which part of the computer does an EIDE cable connect to?
8. The number of broadband subscribers in India currently is more than a. 1 million, b. 2.5 million, 5 million or d. 10 million ?
9. Which of the following is not a network connectors?
a. DVI b. RJ-45 c. BNC d. DB-15
10. What is the full form of 'SaaS'?

ANSWERS TO CONNECT QUIZ-19

1. 480 Mbps
2. The mouse was invented by him.
3. Local Loop Unbundling
4. MIMM
5. 1982
6. CAPTCHA (a contrived acronym for Completely Automated Public Turing test to tell Computers and Humans Apart)
7. Hard Disk Drive
8. More than 5 million
9. DVI (Digital Visual Interface (DVI) is a video interface standard designed to maximize the visual quality of digital display devices such as flat panel LCD computer displays and digital projectors.)
10. Software as a Service

MROTEK™
Access Every Network

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