



# ROUTERS

## An Evolving Phase

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The network router is quickly evolving from a device dedicated to connecting disparate networks to an integrated services device capable of multiple functions beyond routing. The networks are expected to offer increased and diverse functionality which has given a competitive edge to the router vendors. The Indian telecom industry is progressing by leaps and bounds and is witnessing a clear deployment of integrated service routers that can deliver voice, video, data, and internet access, wireless,

and other applications. The job sheet of a router has been augmented from not only traffic forwarding but also of intelligent controlling and reporting decisions.

### Market Dynamics

The Indian routers market is estimated at Rs. 1325 crore in 2009. The industry witnessed a decline of 34 percent from Rs. 2000 crore in 2008.

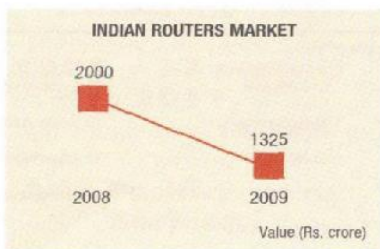
Major players in the industry include Cisco, Juniper, Dax, BA systems, D-Link, One Networks, 3Com, Gemini, Allied Telesyn, LinkSYSs, MRO-Tek, Multi-tech, Netgear, SMC, Zyxel, Foundry Networks, Huawei, and Nortel.

### Growth Drivers

The rise in the industry is going to be driven by carrier Ethernet, advent of 3G and WiMAX. Consumer voice, data, gaming and data device zone are

undergoing an explosion thrusting an increasing demand for bandwidth, which will push the router market on a growing spree. This will direct the vendors to build a scalable and secure data networking equipment for service providers. Animesh Sahay, Head-Telecom Business, India & SAARC, Juniper Networks anticipates, "With key market segments like service provider and Government expected to increase spends in the coming year, the router market should see robust growth."

With enterprises supporting worldwide operations, global communications is another significant driver of the router market. In today's world of tough competition, the need for higher capacities holds ground which is driven by the latency sensitive applications like video. The increasing data usage in the mobile networks, particularly the third generation ones,



as well as the growing acceptance of fiber-to-home and fiber-to-curb and other options of optical connectivity, has opened new avenues for the router market. Sahay adds, "The explosion of consumer voice, video, gaming and data devices has led to an increased demand for data bandwidth. This is driving the demand for our core competency—building scalable and secure data networking equipment for service providers."

## Technology Trends

The market is showing a movement towards integrated devices with varied built-in capabilities like content processing, VPNs, and load balancing. An integrated network router solution is a growing concept owing to features like high flexibility and compatibility with future technologies. Prem Nithin, Senior Technical Consultant, Cisco says, "The network router is quickly evolving from a device dedicated to connecting disparate networks to an integrated services device capable of multiple functions beyond routing." Sahay affirms, "Larger organizations are looking for an innovative approach for their router moving towards deploying efficient and optimized hardware/software platforms to guarantee embedded security, VPN and significant performance."

Wireless capabilities have become prominent for replacing the need for separate wireless access points for small office networks. At the same time, routing devices will enable optimal deliver on services such as covering voice over IP, videoconferencing, application acceleration, and network analysis. Nowadays, routers have features like firewall capabilities which earlier was a standalone device. A router being an omnipresent and indispensable component of a network as every packet that crosses the network passes through a router; makes them a reasonable point to consolidate functionality. To avoid the pitfalls

of placing too much functionality on a single platform, Layer 3 traffic forwarding and routing has come into role play.

With bandwidth hungry application surfacing at a gigantic rate, routers with capabilities of carrying large bandwidth are the need of the day. Nithin says, "Another key trend will be the building up of large bandwidth carrying router devices to support the digital explosion and providing seamless upgrades for the same."

Security being a key issue faced by enterprises these days, they are looking for an innovative approach for their router moving towards deploying efficient and optimized hardware/software platforms to guarantee embedded security. Latest in the routing block is the innovation of a broad band router with a touch screen user interface. It is expected to attract a lot of attention from users as it circumvents the complexities involved in logging into routers through a web browser and IP address.

The telecom industry is undergoing a boom, carrier class routers with the capability to handle and route data in terabits will be piloted and deployed. Nithin confirms, "With large telecom players attempting to differentiate themselves, gigabit and terabit routers are expected to gain popularity among Indian customers."

## Major Challenges

The networks have evolved over the years and are now expected to offer increased and diverse functionality as organizations face the demands for increasing scalability of the infrastructure; the need to integrate new complex technologies; challenges of new and daily threats from hackers and viruses; and the escalating costs of systems integration. Meeting these challenges requires sophisticated systems and tools that deliver greater capability with less complexity. Nithin comments, "The network plays a crucial role

because it touches everything from end users to middleware, services, applications, and servers. Adding intelligence to the network will enable applications and services to operate more effectively."

While most demand verticals are poised for growth, there are short-term concerns around the IT/ITeS, manufacturing, and retail sectors. Indian service providers are looking to increase RoI in the face of declining ARPU, keeping in mind the competitive nature of the market. One option that all service providers are looking at is services such as 3G applications, video on demand, videophones, data on demand, and tying up with application service providers for mobile apps. To fulfill future communication network requirements, predominantly driven by the growth of new and emerging services, next generation communication infrastructure relies on advances in component, module, and system levels complemented by innovative network architecture solutions. Router vendors have to understand this requirement and respond to this quickly and efficiently.

## Future

The router industry will witness a chain of innovations, like routers capable of supporting 100G interface, carrier Ethernet initiatives, high capacity enterprise routing, Ethernet switching portfolio expansion, and so on. Routers that require less power per bit, generate less heat per bit, and require less cooling per bit are the way forward. Sahay says, "The router market is expected to grow in the country because of a seemingly insurmountable amount of data, video, and voice traffic is hitting networks with massive increases each day." Service providers are likely to steer future growth providing huge opportunity for the global router market, as routers comprise an essential part of the next-generation networks. ■