

**Customer**  
Baidu.com, Inc.  
Beijing, China

**Industry**  
Internet Search



**Applications**  
Search Engine

**Highlights**  
China's leading search engine chooses the Force10 Networks TeraScale E-Series switch/routers to boost network capacity and ensure predictable performance and a repeatable experience for users.

# Force10 E-Series Boosts Network Capacity and Ensures Predictable Performance for Baidu

There are at least 38 ways of saying "I" in Chinese, according to Baidu.com's prospectus for its recent initial public offering. This understanding of the subtleties of Chinese language and culture are at the heart of Baidu's success, helping catapult it to China's number one search engine and the world's sixth most popular website.

Headquartered in Beijing, Baidu positions itself as a technology-based media company providing the best way for people to find information. It also serves as a platform for online marketing customers. Key to its success are the company's local connections and its mission to provide users a simple, reliable search experience every time they go online. This combination of customer focus and strong technical execution is helping Baidu build brand loyalty.

"Our dedication to enhancing the user experience has attracted more and more users to Baidu for their information needs," said Robin Li, Baidu's Chairman and CEO, in the company's first earnings announcement. With its emphasis on localized content and language, Baidu is well positioned to take advantage of China's exploding market for Internet-based services. Currently China has the second highest number of Internet users in the world, with 103 million users. That number is projected to grow to 187 million in 2007, according to iResearch.

For Baidu, keeping up with that pace of growth means ensuring that users experience predictable response times when performing searches and other online activities. Any degradation or variability in response time poses a competitive risk – users will simply turn to another search engine.

But as the number of Baidu users and searches escalated, network congestion began slowing search times. Baidu's IT team knew it was time



to overhaul the network core in each of the company's data centers. They selected the Force10 Networks TeraScale E-Series family of switch/routers for the upgrade, leveraging these high density, fault-tolerant systems to scale capacity, deliver predictable performance, and reduce data center costs.

## Reliably Scaling Performance

In evaluating vendors, Baidu's key objectives were to boost network capacity and ensure predictable performance in all of its data centers – crucial for customer satisfaction. The IT team wanted a new network core that could handle the current traffic load in each data center as well as scale to meet ever increasing traffic. High availability was also a must. In addition, the team wanted to eliminate congestion points, a major factor impacting performance predictability.

The Force10 TeraScale E-Series offered Baidu performance gains and predictability in several ways. With an industry-leading 672 Gigabit Ethernet (GbE) and 56 10 GbE line-rate ports, the E-Series delivers non-blocking, wire-speed data transport with the capacity to scale with the most demanding traffic loads. In addition, the E-Series

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## Customer PROFILE

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was designed to eliminate potential bottlenecks within the system itself. The E-Series line cards, switch fabric, backplane, central processor and operating system have all been optimized to process terabits of traffic at line rate in a reliable, predictable fashion.

The redundancy and resiliency features of the Force10 E-Series are also crucial for delivering predictable performance. All E-Series systems feature fully redundant components. In the event of a failure, secondary components continue to process traffic with no packet loss, ensuring hitless failover. The E-Series also has a fully distributed, architecture, which features independent processors for switching, routing, and management. This patented architecture allows faults to be contained while protecting other parts of the system. The Force10 ability to maximize network uptime translates directly to a positive user experience.

Baidu was also able to deploy the E-Series switch/routers in an architecture that greatly simplified the network and eliminated potential congestion points, further ensuring predictable performance. The high port density of the Force10 E-Series enabled Baidu to directly connect hundreds of servers to a single chassis. This high density, coupled with the robust Layer 2 and Layer 3 functionality of the E-Series, also allowed Baidu to remove the network access and aggregation tiers from its infrastructure, each of which posed potential bottlenecks.

### Lower TCO Benefits

Another benefit Baidu reaped from the Force10 E-Series is a lower total cost of ownership (TCO). In addition to simplifying Baidu's network architecture, the high port density of the E-Series meant the company needed fewer chassis in each data center. By deploying a relatively low number of high density chassis in a single-tier architecture, Baidu cut its equipment costs and

required less space in the data center for network gear. In addition, the company has lowered its power, cooling, and maintenance costs and needs fewer support staff.

Lowering the network TCO means Baidu has additional resources available – from floor space to IT dollars – for strategic initiatives, such as deploying more servers to increase its search capacity.

Through its own local presence, Force10 has been able to help Baidu realize the business as well as technical benefits of its E-Series switch/routers. With a sales team in China and service and support centers in Tokyo and Chennai, India, Force10 is able to work closely with Baidu and other Asian customers, responding quickly to address the range of customers needs.

### Delivering Predictable Performance

Force10 is helping Baidu deliver on a key aspect of its mission: providing its users a predictable, repeatable online experience. Through its scalable, reliable, congestion-free E-Series switch/routers, Force10 is enabling Baidu to build predictable performance into its data center networks with plenty of capacity to accommodate future growth.

Baidu has put in place the technical underpinnings needed to provide the best search experience to Chinese Internet users. This technology foundation, coupled with the company's focus on local content and language, puts Baidu in a strong position to maintain its leadership in the rapidly developing Chinese Internet market.



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