

# eHarmony Builds Reliable Relationship with Force10 Networks

## Customer PROFILE

**Customer**  
eHarmony

eHarmony®

**Industry**  
Online Relationship Building

**Application**  
Data Center Network

**Highlights**  
The Force10 Reliable Networking product portfolio provides the reliability, network control and scalability eHarmony requires in its data center to successfully match users based on more than 400 parameters.



**Shannon and LJ**  
Married: August 5, 2006

*With 14 million registered users and industry-leading brand recognition, eHarmony has a reputation for successfully matching registered users based on factors such as values, spiritual beliefs and sense of humor.*

While dating can be chock full of obstacles, eHarmony is working to make sure a network outage is not one of them. With nearly 100 members on average marrying every day, the unrelenting and rapidly growing network bandwidth required to support that level of customer connection posed a great challenge for the relationship site."

To provide a reliable, flexible and high performance network capable of effectively scaling to answer future demands, eHarmony deployed the Force10 Networks® TeraScale E-Series® family of switch/routers and the C300 resilient switch.

With 14 million registered users and industry-leading brand recognition, eHarmony has a reputation for successfully matching registered users based on factors such as values, spiritual beliefs and sense of humor. To begin the process

of achieving a deeper level of compatibility, eHarmony members fill out an online relationship questionnaire with more than 400 questions.

With scores of new users every day, facilitating a possible love connection requires a significant amount of computing power from processing and storing the filled-out questionnaires to sending out initial matches to the members within six hours.

### **Premium Service, Premium Expectations, Premium Solution**

During the first six hours between a new client submitting their questionnaire and receiving their initial matches, traffic between the switches can peak at 40 Gigabits per second (Gbps), up from an average 34 Gbps.

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### Cyrus Mohit

Manager of Data Center Operations  
eHarmony

In addition, the eHarmony site serves as an email communication portal for its users. A recent application-layer outage interrupted the romance flowing over the network, causing the customer care department to be flooded with thousands of phone calls.

"We're not just a browse-the-picture, see-if-this-person-is-good-looking kind of site," says Cyrus Mohit, manager of data center operations at eHarmony. "Because of the amount of processing that goes on in the background, the load that the systems have to support is extremely high."

Ultimately, eHarmony understood that a continuing inability to scale would impede more than just love – it would also affect profitability. Without a network that can scale to match corporate growth, the customer experience can deteriorate and the ability to handle more users would be adversely affected.

To gain the reliability, resiliency and high performance to better support current and future needs, eHarmony deployed the Force10 TeraScale E1200, TeraScale E600 and TeraScale E300 switch/routers at the core of its East and West Coast data centers. As the foundation of eHarmony's network, the TeraScale E1200 aggregates the E600 and E300 in a line-rate 10 Gigabit Ethernet core. The TeraScale E600 aggregates servers to create a resilient backbone that interconnects the core switch infrastructure while the TeraScale E300 is deployed as the peering router at the WAN edge of the network to connect the data centers to bandwidth providers.

"It's an unforgiving environment because of the huge amount of data that must be accessible 24x7," says Cyrus Mohit. "In the 12 months that we have had Force10 in our network, uptime has increased from 99.6 to 100 percent."

Designed for reliable and scalable performance, the E-Series line cards, switch fabric, backplane, centralized and distributed CPUs and operating system have been optimized to process terabits of traffic at line-rate speeds while the passive backplane architecture eliminates single points of failure. With support for up to 1,260 Gigabit and 224 Ten Gigabit Ethernet ports, the E-Series provides the density eHarmony needs to deliver new services and support the seamless scalability of its user base.

### Flexibility Breeds Reliability, Usefulness

With hundreds of servers to manage, eHarmony's IT staff required flexibility and ease in configuring its systems and conducting upgrades and maintenance. The diversity of line cards for the Force10 TeraScale E-Series allows Cyrus Mohit to optimize the network for eHarmony's evolving needs. Additionally, the distributed three CPU architecture of the E-Series provides protected memory and processing for each of its key functions – switching, routing and management. In this true 24x7 environment, that fault tolerance meant not having to bring down portions of the network to conduct these activities.

The unix-like nature of the Force10 Operating System (FTOS) provides further flexibility with process modularization and memory protection. Additionally, support for robust Layer 2 switching and Layer 3 routing implementations allows eHarmony to consolidate its network and ensure reliability from the server edge to the WAN edge. For Cyrus Mohit, that flexibility enabled his group to more easily deal with activities such as code updates and bug fixes.

"It also gives me the ability to set the MTU (maximum transmission unit) size on a per port basis and make those changes across the enterprise," says Cyrus Mohit. "It gives me the flexibility to set up my network equipment to how it's going to be most useful."

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### C-Series Brings Reliability to Business-Critical Operations

With the Force10 E-Series at the core of the network, eHarmony wanted to cost effectively extend that same reliability to improve the performance of important tasks such as network management and backup without impacting its 24x7 applications. For Cyrus Mohit, the very low statistical possibility of an E-Series failure did not warrant purchasing another device for these tasks.

Instead, eHarmony deployed the Force10 C300 resilient switch. The chassis-based C300 delivers line-rate, non-blocking performance regardless of changes in network traffic conditions. This feature was especially important for backups where the load was variable. During backups, the process required considerable bandwidth, but that demand largely fell off to normal levels at other times. The performance ensured that even during this spike in load, the backup would be finished during its operational window.

"The C300 complemented our network by giving us the ability to add another layer of redundancy and obtain more ports with high throughput in a very cost-effective manner," says Cyrus Mohit. "The combination of the C300 and the E-Series really enabled us to build a network with rock solid performance that delivers value to both the business and our customers."

### Leveraging iSCSI Helps Meet Plan for Growth

With 10,000 new users joining every day, eHarmony has more than doubled its server and network footprint in the past 12 months, in turn increasing its need for storage. However, Cyrus Mohit believed that simultaneously building out eHarmony's existing fibre channel storage area

network (SAN) would be cost prohibitive due to high per port costs and distance limitations. Deploying the Force10 C300 helped eHarmony solve one of its biggest challenges: how to maximize its SAN for future growth expectations.

Support within the Force10 C300 for high density Gigabit and 10 Gigabit Ethernet allows eHarmony to leverage iSCSI technology to connect to its storage area network. As a result, eHarmony was able to consolidate its network infrastructure over Ethernet, easing management tasks, such as capacity planning.

"Force10 has really given us the ability to cost effectively build a storage environment that utilizes iSCSI technology," said Cyrus Mohit. "It's a big win for us in that the consolidation of storage over our 10 Gigabit Ethernet network provides a more effective foundation for scaling our resources, and it is much easier to monitor usage and configure devices for the requirements of our applications."

### Facilitating Connections to Create Connections

The communication that helps create thousands of new relationships at eHarmony every year is being facilitated by the flexibility, reliability and high performance of the Force10 Reliable Networking product portfolio. Looking ahead, the company has effectively moved from "maxing out" its previous network to becoming a more agile IT operation that can easily and flexibly manage and scale its network to accommodate services that will better bring people together.

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**Cyrus Mohit**  
Manager of Data Center Operations  
eHarmony



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CP36 108 v1.2