

# Seismic Data Processor Tricon Geophysics Accelerates Information Services with Gigabit Ethernet from Force10 Networks

## Customer PROFILE

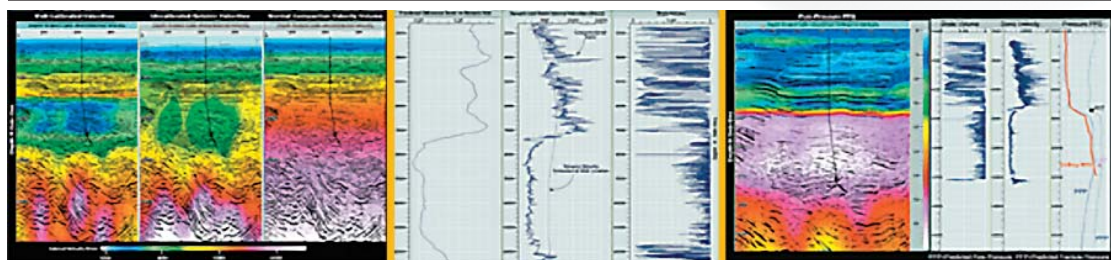
**Customer**  
Tricon Geophysics, Inc.



**Industry**  
Oil and Gas

**Application**  
Data Center

**Highlights**  
Tricon deployed the Force10 C300 resilient switches and S50 access switches at their data centers in Houston and Denver to power more efficient data movement while gaining greater transparency into network traffic for its clustered server environment.



*Powered by Force10 Networks, Tricon's advanced seismic imaging services include full 2D and 3D pre-stack time and 3D depth migration, and amplitude variation with offset (AVO).*

Founded in 1994, Tricon Geophysics, Inc. provides seismic data processing services to the oil and gas industry around the world. Its business is focused on taking raw seismic data, both land and marine, and running specialized geophysical software programs that transform the sound energy that comprises digital seismic data into highly detailed 2D and 3D images of the earth's subsurface.

Millions of dollars are at stake for every decision to drill for oil or natural gas reserves. The accuracy of these subsurface images, produced and delivered on time, are a critical component in deciding when, where and how the next well will be drilled. The company has learned that in order to maintain its competitive edge, its network infrastructure is a core element, which it cannot afford to neglect. So when Tricon's data centers found their legacy core switches insufficient to provide adequate data movement, they deployed C-Series resilient core switches and S-Series access switches from Force10 Networks.

### Wrestling with I/O

Processing seismic images creates enormous data volumes that range from 500 Gigabyte to several Terabyte (TB) single files, and projects as big as 4–5TB up to as much as 24TB in size. Moving and storing scores of these huge files can create bottlenecks within the network, causing geoscientists, seismic engineers and others to wait long periods of time to access the data.

“Because we deal with huge data volumes from the field and our clients, ensuring a proper flow of information from one system to the other is our biggest challenge,” says Rizwan Toor, Tricon’s IT director. “It’s at the core of what we do all day long.”

Moving data across systems can impede performance in different areas depending on the steps of the particular cycle. As data is being moved or processed, some steps and applications are more CPU-intensive, while other cycles are more capital- or input/output (I/O)-intensive. Subsequently, Tricon finds itself on a never-ending quest to identify the weak links in the chain of cycles and how best to address them.

### High Performance Speeds Time to Market

Tricon recently began offering marine seismic data processing services to its clients. Since gathering seismic information from under the oceans creates far more data than doing so on land, Tricon found their legacy switches increasingly unable to provide the bandwidth to move these much larger files between systems and users.



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### Rizwan Toor

Director of IT  
Tricon Geophysics, Inc.

“When your network is bogged down, your response time is slow, everything takes more time, and productivity suffers,” explains John Contino, executive vice president, Tricon. “It sounds simple, but many of our clients have hard deadlines. You have to perform and execute and there’s nothing worse than being in a situation where you fail to perform or your timelines are so constrained that you have no room for error.”

To power its data centers in Houston and Denver, Tricon deployed one Force10 C300 resilient switch at each location. With up to 384 line-rate 10/100/1000Base-T ports, coupled with 5 microsecond switching latency under full load for 64 byte frames, the chassis-based switches provided the port density and throughput Tricon needed to ensure its critical data processing performance. With nearly 1,000 nodes in Houston and more than 250 nodes in Denver, Tricon leverages the switch’s backplane capacity of more than 1.5 Terabits and more than 950 Megabits per second of L2/L3 packet forwarding capacity.

“If there’s a lease sale or a lease is expiring, for example, the client has to make a decision with a multimillion dollar rig, whether or not they are going to drill a multimillion dollar well. They need to have that information ahead of time to know how long it’s going to take to get that done. The faster everything moves the better things go,” says Contino.

### FTOS Improves Network Management and Visibility

To bring Gigabit Ethernet connectivity and core-like resiliency to their network edge, Tricon deployed two S50 access switches in both the Houston and Denver data centers. The Force10 Operating System, FTOS, enables administrators to manage both the Force10 S-Series and C-Series. As a result of having the same OS across its entire product line, Tricon enjoyed common management functionality,



*Tricon’s work experience has led them to be involved in most of the oil and gas regions being explored today, making network reliability evermore crucial.*

resulting in more consistent configurations and simpler, more unified software management, which also meant no administrator retraining.

According to Toor, having FTOS was instrumental in the performance, reliability and visibility perspective advantages they saw. FTOS derives these advantages from its Unix-like NetBSD kernel that provides inherent stability and performance by separating memory allocation and process scheduling, while all other applications run as independent and modular processes in their own protected memory space. This separation of OS and application functions limits application scope, provides inherent platform stability and improves overall performance.

FTOS also enabled Tricon to gain greater visibility through its VirtualView functionality. VirtualView provided the company with real-time network traffic statistics on virtualized machines, which was needed in Tricon’s clustered server environment. Administrators were able to set baseline and on-going application performance levels as well as gain visibility into how each network port was performing normally and during peak operating periods.



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**John Contino**  
Executive Vice President  
Tricon Geophysics, Inc.

### Agile Operations Today, Scalable Future Tomorrow

As a result of deploying a high performance, reliable and scalable network infrastructure, Tricon improved its corporate agility and helped ease the transition into new markets from an IT perspective.

Reflecting on their Force10 deployment, Contino and Toor believe the entire company has benefited from its network upgrade. “It’s made our company more competitive by being able to implement this network infrastructure at a lower overall cost,” says Contino.

“The cost-per-port was better than anywhere else we had seen,” Contino adds. “With the reliability and the end-to-end line rate speed the network was achieving, I don’t see any comparable product at this time that has the capability to produce that kind of result based on the total cost of ownership.”

With a 10 GbE network backbone planned in its near future, Toor believes that selecting Force10 will pay additional dividends in the future due to the ability to smoothly migrate the network without any significant reinvestment.

“We’re really pleased that everything is already built in,” says Toor. “We will simply swap cards out and then utilize the bandwidth already available today.”



**Force10 Networks, Inc.**  
350 Holger Way  
San Jose, CA 95134 USA  
[www.force10networks.com](http://www.force10networks.com)

408-571-3500 PHONE  
408-571-3550 FACSIMILE

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