How Cisco Enabled EarthLink to Modernize the Network with Next-Generation Optical Platforms

EarthLink Telecommunications is the largest Internet service provider in Iraq. The company was founded in 2005 to provide communication services to home users, enterprises, and the government. EarthLink is finalizing its vision to be a one-stop shop for connectivity and IT services, including high-bandwidth Internet connectivity, cloud computing, data center colocation, enterprise IT solutions, and software development.

Although there are other incumbent operators in Iraq, there was a need to create an innovative newer network to be built in parallel to provide improved Internet services for the country. Thus EarthLink Telecommunications has invested in a brand-new network, the Iraqi national backbone.

The Iraqi national backbone premium route from the Gulf to Europe has replaced a subsea route that was longer, providing a new higher bandwidth link directly to Europe with less delay. The new network covers major Iraqi cities as an alternative to current submarine networks, which conduct communications from Europe to the Middle East via the Suez Canal or the Horn of Africa. This was all done with the latest technology from Cisco.

Executive summary

Customer:
EarthLink Telecommunications

Location:
Iraq

Competition:
Ciena, Huawei, and Nokia

Winning Cisco products:
NCS 2000 with Flex Spectrum SMR 9/20 and 400G muxponder, NCS 5500, and ASR 9000

Challenges

The project faced three major challenges. EarthLink needed to provide more stable Internet access and offer triple-play services for its customers. The previous network was limited and could not scale to support video types of services required today. EarthLink also needed to bridge the "digital divide" for the people of Iraq because Internet connectivity in the country has been one of the poorest. The government gave the license to EarthLink Telecommunications as a company that has experience in this field and can provide Internet connectivity to an entire nation. The health of a nation's economy is often correlated with good broadband connectivity.

The second challenge was the slower subsea connection to EMEAR. A new network built on the Cisco® NCS 2000 enabled a premium and direct route to Turkey, providing a shorter path and lower latency.

The third challenge was to maintain resiliency of the optical network. EarthLink required Layer 3 protection as well as optical restoration. Deploying them together with Cisco allowed both layers to work hand in hand to manage the multilayer restoration.

EarthLink's own organization is extremely technical, from the CEO to the engineers. The installation, turnup, and overall management of all IP and optical equipment were done entirely by EarthLink. Aside from initial training on the products, EarthLink did everything to bring the entire network up and is running high-bandwidth triple-play services on it today.

Elements of the win/our solution

EarthLink had previously deployed Cisco ASR 9000 in the metro, so deploying the ASR for Internet access and triple-play services was an easy installation. For the long-distance route, the competition for the optical network was much tougher and required all competing vendors (Cisco, Ciena, Huawei, and Nokia) to simulate 10 different paths to prove that the long-distance route was achievable on the fiber in place.

Some of the fiber was very challenging, so all optical variables and parameters needed to be tested. Distance was one parameter, because the farther you can go, the more economical the route is. The number of filters (ROADMs) on the end-to-end span was also subject to test. Cisco had overall better OSNR performance across these variables. EarthLink used EPNM, Cisco's management system for the optical and routing platforms, which helped provision and manage those platforms in the network.

The long-distance link to Turkey replacing the higher latency subsea connection required a 1+1 100-Gbps diverse route, so failure scenarios had to be tested. Cisco, again, beat out the competition with Layer 3 sub-50ms protection on the ASR 9000 and optical restoration with the NCS 2000, especially for the worst-case scenarios. Resiliency for all the fiber cuts was crucial, as was the self-healing of the DWDM network. Together these were the main contributors to the solution.

No other vendor had the combination of IP and optical performance that Cisco delivered. This superior performance compared to other vendors made the decision straightforward. While Nokia bid its own routers, Ciena had to bid another vendor's router because Ciena lacked the end-to-end solution. In fact, Ciena bid a Cisco router.

How we won/outcome

Cisco won indisputably over Ciena, Huawei, and Nokia by achieving the longest distance: up to 1250km with 8 filters, and that included an EOL margin of 3dB. Older fiber (0.25–0.27dB loss) spans are typical, but Cisco was able to demonstrate and preserve 3dB of system margin. Both Nokia and Ciena were unable to reach 1250km under the same simulation and filters. Cisco passed more filters (ROADM) than the competition. Long distance and filter penalties were conducted together with EOL and system margins. Cisco beat out the competition on all variables: distance, filters, and end-to-end solution.

This win was a very competitive one for Cisco. "You did not get our business because you are Cisco. You simply had the best end-to-end IP plus optical solution, and that's why you won," said CEO Sarmad Hasan. The network is almost complete and currently running production traffic.

C36-740631-00 04/18