Cruise Operator Leverages Advanced Network for New Ships

Norwegian Cruise Line innovates in cruise ship guest experiences and optimizes IT with Cisco Unified Access solutions.

EXECUTIVE SUMMARY

Customer Name: Norwegian Cruise Line
Industry: Hospitality
Location: Miami, Florida
Number of Employees: 14,000

BUSINESS CHALLENGE

- Delight passengers and maximize revenues with onboard network that supports growing demand at sea for BYOD, high-bandwidth video, and wireless POS transactions
- Streamline network deployment and management by limited IT staff

NETWORK SOLUTION

- Leverage 100 percent Cisco network across operations worldwide, and construct new cruise ships with one Cisco Catalyst 3560-C Compact Switch between each cabin

BUSINESS RESULTS

- Made network compatible with evolving services to enhance guest experiences
- Optimized IT resources with more efficient deployment and administration capabilities

Business Challenge

Norwegian Cruise Line, headquartered in Miami, Florida, operates the youngest fleet of cruise ships at sea, totaling 11 ships with more than 26,000 passenger berths. Its innovations in cruise travel include offering "Freestyle Cruising" for greater guest freedom and flexibility, as well being the first to introduce fleetwide Internet cafes, cell phone service, and wireless Internet access at sea.

Norwegian Epic, the line's largest and most innovative ship with 4100 cabins, debuted in 2010. In planning for this new ship, and with the knowledge of two additional 144,000 ton ships set to debut in 2013 and 2014, Norwegian sought to reimagine the amenities on board for enhanced guest experiences.

More robust services were envisioned to delight guests, leverage advances in network technology, and maximize revenue opportunities. Norwegian wanted a more sophisticated network foundation that would meet growing Bring Your Own Device (BYOD) expectations from passengers, support increasing demand for high-bandwidth video and voice services, and reliably sustain 15,000 IP end points, including new wireless point of sale (POS) devices to enable cashless purchases at vending machines, for example.

Deploying a unified, more intelligent network emerged as a key initiative to simplify deployment and ongoing administration by the company's small IT staff. Installing and configuring the network switches alone could take hundreds of staff hours for a ship the size of one of Norwegian's vessels. Centralized administration capabilities across the entire global infrastructure, including all the ships as well as headquarters and remote sales offices in the United States and Europe, were an absolute must for ease of ongoing network management and controlling the total cost of ownership. Reliability and high availability are always of paramount importance as well, given that the 11 ships are constantly on the move at sea generating cruise travel revenue with only limited IT personnel on board.

"Cisco solutions are helping us meet our goal of continuously providing a guest experience that breaks the boundaries of traditional cruising."
— Vincent Cirel, SVP and CIO, Norwegian Cruise Line

Network Solution

Norwegian has long standardized on Cisco networking solutions across its entire fleet of ships, corporate headquarters in Miami, and remote offices worldwide. The company leverages Cisco IOS® Multiprotocol Label Switching (MPLS) to provide cohesive, highly scalable, differentiated, end-to-end IP services with streamlined configuration and management.

On board each ship, under previous-generation network designs, six thick, copper-based cables ran to each pair of cabins, amounting to thousands of pounds affecting a cruise ship's overall ballast equation. Coaxial cables carried television signals, one Ethernet cable provided interactive television service, and a separate Ethernet cable connected to the Internet. With vessels sizes and the number of berths per ship growing, plus expanding demands on the network, Norwegian worked with Cisco Gold Partner ProSys to deploy a more advanced solution with "triple play" capabilities for data, voice, and video.

Starting with Norwegian Epic, the six cables per pair of cabins were reduced to a single Ethernet cable. The new network design features one Cisco Catalyst® 3560-C Compact Switch between each cabin.

"We needed a small, VLAN-capable switch that could be managed in a unified fashion," says Melissa Good, manager of network operations for Norwegian Cruise Line. "The most important thing to us was that the switches had to be resilient, small, and not have a fan inside to avoid heat dissipation issues. For Norwegian Epic, the Cisco compact switches have been extremely reliable."

Traffic is split into four different VLANs for each cabin: one for telephones, one for television, another to handle environmental controls, and the last for the door-locking system. Approximately 2300 Cisco® Catalyst 3560-C Compact Switches on Norwegian Epic connect to 24 Cisco Catalyst 4500 Series Switches at the distribution layer, and six Catalyst 6500 Series Switches at the network core, which use a virtual switching system (VSS) configuration for optimal bandwidth scaling, operational manageability, and reliability.

In all, Norwegian Epic's on-board network supports approximately 15,000 IP end points, including 6000 phones, 5000 televisions, 200 desktop computers, 200 POS systems, casino devices, wireless POS devices for vending machines, personnel tracking devices, and digital signage.

Power over Ethernet (PoE) further minimizes cabling by supplying power to approximately 11,000 Cisco Aironet® 1260 Series Wireless Access Points, the door-locking system, and network clocks on the Epic. PoE will also power IP deck antennas and video surveillance cameras on two new ships under construction.

Business Results

Technology innovations are supporting expedited construction and deployment for Norwegian Breakaway, the next Norwegian ship to debut in 2013 and followed by Norwegian Getaway in 2014. Both are of a new class of vessels to accommodate approximately 4000 guests and are being built by Meyer Werft GmbH in Germany.

With an 80 percent reduction in network cabling, installation is completed faster and results in a lighter vessel for fuel cost savings. To further save time and reduce costs, Norwegian's IT department will use Cisco SmartInstall technology for zero-touch switch configuration, allowing network administrators in Miami to manage a more automated process centrally and remotely.

"SmartInstall will save us hundreds of man hours configuring switches for the new cruise ship deployments. We didn't use it for the last ship, which took us three weeks in a very cold French warehouse," says Good.

In addition to ease of manageability, Good credits the uniformity of Cisco solutions across the enterprise as a key value driver for Norwegian. "We have a small team of four based in Miami, and a few IT people on each ship," says Good. "With a 100 percent Cisco environment, we can leverage unified management tools and a consolidated skill set to be able to support the organization more efficiently. Plus, with the same type of switches and the same power supplies at all our locations, it means we only have to keep a limited number of spares. Not having to keep spares for 27 different vendors makes problem resolution that much easier."

Cisco reliability maximizes uptime to help keep Norwegian's operations sailing smoothly. "High availability and high redundancy are absolute musts, particularly because the ship telephony system resides on the network and is part of our safety platform," says Good.

With Cisco as a trusted technology partner, Norwegian's technology roadmap can better stay ahead of tidal changes to seize emerging business opportunities and meet evolving cruise ship passenger expectations. "When you're designing a network for a ship that's going to have a 10-20 year service life, you can't do something that

you're going to have to forklift in three years," says Good. "It's more complex than an office building, because a ship is constantly on the move between ports. Cisco delivers tremendous resiliency and reliability to meet Norwegian's unique needs."

Network enhancements are already supporting new services on board Norwegian Epic, such as the recently launched Norwegian Iconcierge app, the first smartphone application to allow passengers to talk and text with fellow cruisers as well as interact with on board guest information and service systems during the cruise.

PRODUCT LIST
Routing and Switching
• Cisco Catalyst 6500 Series Switches
• Cisco Catalyst 4500 Series Switches
• Cisco Catalyst 3560-C Compact Switches
• Cisco Nexus® 5596 Series Switches
• Cisco Nexus 2248 Fabric Extenders
Network Management
• Cisco Prime LAN Management Solutions (LMS)
• Cisco Data Center Network Manager (DCNM)
Security and VPN
• Cisco ASA 5520 Adaptive Security Appliance
Wireless
• Cisco Aironet 1260 Series Wireless Access Points
• Cisco 5508 Wireless Controllers

With the next two ships, Norwegian guests will enjoy enhancements enabled by the newest generation of Cisco Catalyst 3560-C Compact Switches. "The new gigabit ports and dual uplink of the 3560-C switches will have greater throughput for the access points, to better handle more concurrent connections and higher-bandwidth applications," Good says.

"That's important because we're seeing more people wandering around on deck using Apple iPads and playing streaming videos and things of that nature. Cisco's newest solutions are helping us eliminate some of the previous choke points."

As a result, Norwegian can offer its guests a growing array of entertainment features and transaction options for goods and services, reaching guests in their cabins or wherever their activities may take them throughout the ship. With pervasive wireless on board, guests can access concierge services on a whim via their own wireless devices or possibly encounter more roaming, tablet-toting concierge personnel to help with a multitude of impulse purchase opportunities. The possibilities expand for casino gaming, scheduling a massage at the ship's spa, exploring shore excursion options, or watching movies anywhere, anytime a guest prefers.

Norwegian's senior vice president and CIO, Vincent Cirel says, "Cisco solutions are helping us meet our goal of continuously providing a guest experience that breaks the boundaries of traditional cruising."

For More Information

To find out more about Cisco Catalyst switches, go to: http://www.cisco.com/go/catalyst.

To find out more about Norwegian Cruise Line, go to: http://www.ncl.com.

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