



## Swiss Harbor Connects Boaters to Internet with ZyXEL Outdoor Wi-Fi Solution

### Overview

#### Customer Name

Porto di Locarno

#### Customer Industry

Recreation

#### Challenges

- Provide harbor with Wi-Fi connectivity
- Signal range would have to cover an area 39,000 square meters
- Wi-Fi signal would originate from shore
- Provide easy setup and management
- Scalable for future expansion

#### Solutions

- 802.11 a/b/g/n Outdoor Business WLAN Access Point

#### Benefits

- Reliable signal coverage
- Dual bandwidth for future transition to 5 GHz
- Sensitive enough to receive weak signal reception from distant mobile devices
- Economical solution
- Excellent customer service and support

### Background

Porto Regionale di Locarno (or Locarno Port), is a harbor facility located on Switzerland's Lake Maggiore on the south side of the Alps. The harbor provides a wide variety of services for yachts and private pleasure craft operating

on the lake, including berthing for up to 372 vessels, market, waste disposal, electrical and water hookups, overnight mooring and a launch ramp.

### Challenges

Operators of Porto Regionale di Locarno dreamed of providing visitors with the ultimate boating experience on scenic Lake Maggiore — the ability to sail into the harbor and immediately access the Internet via Wi-Fi from their vessels. However, the harbor itself occupies an area of 39,000 square meters, presenting a considerable technical challenge to provide complete wireless coverage.

Hoping to solve this problem, port operators turned to computer science partner from Bellinzona, Sertus I.T.S. SA. Their task would be to provide reliable Wi-Fi access over an area spanning 120 x 330 meters, including all 372 berthing spaces. It quickly became clear that only by providing coverage from the shore would the project be successful.



## Solutions and Benefits

In order to optimize coverage for the area of Porto di Locarno, Sertus I.T.S. SA decided to use ZyXEL NWA3550-N outdoor dual-radio access points. The first access point had to be placed at the harbor management building, which housed the entire IT infrastructure. However, as the building was constructed on a raft over water, and, for the sake of optimizing the overall performance, the idea of providing coverage with Wi-Fi bridges between access-points was withdrawn. Instead, two more access-points were installed on poles along the shoreline. Because to the long distances between them, they were connected with a fiber optic cable, as well as media converters and

PoE injectors from ZyXEL. Lightning arresters installed on the poles completed the solution.

The selection, placement, and orientation of external antennas was crucial for obtaining the optimal performance from the outdoor Wi-Fi system. At Porto di Locarno, five-sector beam antennas from Wistec with beaming angles of 100° horizontal and 15° vertical were used to ensure coverage for the entire area. They brought a gain of +15dBi in the direction of signal amplification — up to 120 meter into the lake.

## Next Step

The port operator wished to limit the coverage to the 2.4 GHz frequency band for now. In order to more easily increase the overall capacity of the Wi-Fi network later, additional 5 GHz radios can be enabled at the access points along with the 5 GHz version of sector antennas. An increasing number of smartphones, tablets, and notebook computers have dual-band enabled wireless

receivers. If the system was eventually complemented with a ZyXEL NXC2500 Wi-Fi controller, its band-select feature could be used for load-balancing between the 2.4 and 5 GHz frequency bands. This would ensure optimal load distribution of associated wireless devices on the two different frequency bands.

## Product Used



### NWA3550-N 802.11 a/b/g/n Outdoor Business WLAN Access Point

- No extra cost converting stand-alone AP architecture into management WLAN architecture
- Simplified management with scalability
- Secure architecture for reliable, scalable Wi-Fi networks
- Enterprise-class Access Point functionality

### About ZyXEL Communications

ZyXEL Communications Corp., founded in 1989 and headquartered in Taiwan, is the leading provider of complete broadband access solutions. As one of the early modem manufacturers, ZyXEL has gone through transformations in the fast-paced networking industry. Delivering cutting-edge communications innovations to more than 400,000 businesses and more than 100 million consumers throughout the world, today ZyXEL is one of the few companies in the world capable of offering complete networking solutions for Telcos, small to medium-sized businesses, and digital home users for a wide range of deployment scenarios. Telco solutions include Central Office Equipment, Customer Premise Equipment, Wired and Wireless Access Network Devices, and Carrier Switches. SMB and Enterprise solutions include Unified Security Gateways, LAN Switches, WLAN, and IP Telephony. Digital Home solutions include Network Connectivity Devices and Multimedia Solutions.

The company has 1000 employees and distributors in 70 countries, reaching more than 150 regional markets. The ZyXEL Communications Corp. includes 35 subsidiaries and sales offices and two research and development centers worldwide. For more information, visit the company's Website, <http://www.zyxel.com>.

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