

RYBOVICH SUPER YACHT MARINA AND REFIT

By Joe Bousquin ■ *Contributing Editor, Broadband Properties*

Yacht owners docking at the Rybovich Super Yacht Marina and Refit in West Palm Beach, Fla., now have phone and Internet access from the yacht, with all the speed and reliability a state-of-the-art fiber network can offer. Our thanks to Rybovich's John Vander Wagen and Alloptic's Tom Anderson for their assistance in preparing this feature, which highlights one of the most unusual fiber deployments we've encountered.

When a company's name stretches back nearly a century and has been paired with the likes of Hemingway, Firestone, Maytag, du Pont and, more recently, Bernie Madoff, its customers tend to have certain expectations.

That's why Rybovich Super Yacht Marina and Refit in West Palm Beach, Fla., had to ensure it offered the best of everything as it embarked on a \$100 million overhaul of its 24 acres of shoreline and dock space. To set itself apart from the tonier yacht meccas of Broward and Miami-Dade Counties, the marina added poolside entertainment areas, bars and restaurants, retail shops, a gaming room and a fitness center replete with flat-screen TVs. Wi-Fi Internet connectivity is available throughout the property. Located just minutes from the world-class dining, entertainment and shopping options on PGA Boulevard and Palm Beach's Worth Avenue, the marina is poised as a gateway to sophisticated land pursuits for yachters returning from extended cruises.

While at dock, the marina's uber-rich clientele – Tiger Woods has reportedly berthed his \$20 million, 155-foot yacht, Privacy, there – now enjoy fiber-to-the-slip Internet connectivity at speeds up to 25 Mbps, as well as marine phone connectivity, from the staterooms in their

300-foot-long yachts. To update the marina's communications, Rybovich installed a fiber optic network from Livermore, Calif.-based Alloptic, including weathertight optical network terminals (ONTs) at each of the 60 slips, just inches from the lapping salt water of the Intracoastal Waterway, in an environment where the relative humidity routinely exceeds 80 percent.

"In terms of deploying technology, this is a harsh environment, to say the least," says John Vander Wagen, Rybovich's chief information officer. "We partnered with Alloptic to ensure we had a solution that could stand up to the elements."

Alloptic, which specializes in deploying temperature-hardened equipment, had deployed networks in similarly challenging environments in the past, though never on the scale of the Rybovich marina. A weathertight power cabinet from Eaton protects the Alloptic home4000 ONT at each slip; the company



Rybovich Marina and other featured Properties of the Month will be highlighted at a special session of the Broadband Properties Summit, April 26 – 28.



The power pedestal on the dock supplies 480v, 240v and 208v electrical service to each boat. The big cables are the electrical supply; the smaller blue cable is the Cat 5 line providing Internet connectivity to the boat.



The customer sees this interface at the slip for data, phone and television jacks, if needed. Gaskets protect the cabinet from the weather. The ONT inside this cabinet gives off enough heat to evaporate any moisture.

engineered the setup so that the heat the ONT generates quickly eradicates any moisture that might penetrate the housings.

“This is a weather-hardened product deployed in a world-class setting. We’re very proud to be a part of that,” says Tom Anderson, Alloptic’s vice president of marketing.

Rybovich anticipates that the fiber network will cost less, over the long run, than a traditional copper system. Such a network would have required constant maintenance, Vander Wagen says, as well as repeaters to cover the distances of the slips, which can be as long as 900 feet. As a bonus, Rybovich was able to forgo deploying coaxial cable to the docks themselves, which would have meant even more copper deployed in the harsh environment. Combined, the total initial savings added up to \$100,000.

“That’s just in the first year,” Vander Wagen says. “If you look beyond that, you would probably have to replace your equipment, and possibly the wiring itself, every three years or so. We expect that fiber will last us 10 to 20 years. Overall, it’s just much more reliable than copper.”

HEMINGWAY, BIG TOYS AND HIGH SPEED

In the world of mega-yachting, longevity is what Rybovich is all about. Founded in 1919 by John Rybovich Sr., who was known throughout the industry as “Pop,” the company originally built custom fishing boats for men with money who wanted to tame the big game fish off the Florida coast. Ernest Hemingway brought his Pilar, the legendary 35-foot Wheeler yacht portrayed in “To Have and Have Not” and “Islands in the Stream,” to be serviced and outfitted at the yard.

Appliance mogul Robert Maytag, tire tycoon Roger Firestone and chemical company heir William du Pont all commissioned Rybovich yachts. And last year, Wall Street fraudster Bernard Madoff listed a \$2.2 million, 55-foot “Rybovich boat” among his assets when federal investigators closed in on him. By the 1960s, the legend of Rybovich yachts’ luxury – and their ability to cause trophy fish to rise from the azure – had grown so large that Sports Illustrated put one of the vessels on its August 2, 1965, cover, under the breathless headline The Rich Rush of a Rybo.

In the 1970s, after the passing of John Sr., the company went through a rough patch and fell out of family hands. In 2005, Florida tycoon and Miami Dolphins co-owner Wayne Huizenga Jr., the founder of Waste Management and Blockbuster Video, bought the firm. He immediately brought in Michael Rybovich, grandson of John Sr., to head boatbuilding operations. The move put a Rybovich back at the helm of the storied sports fishers’ production for the first time in a generation.

A centerpiece of the company’s rebirth was Rybovich Super Yacht Marina and Refit. “Our goal is to be the premier mega-yacht marina, refit and repair facility in the world,” Vander Wagen says. “For our captains, crews and owners, we feel that a visit to Rybovich should be like a stay at the Ritz.” The property boasts substantial boatbuilding, dry hauling and repair services, including one of just three 660-ton boat lifts in the world. A customer wanting to add an extra 30 feet to a 180-foot super yacht can dock at Rybovich, which will chop the boat in half, insert an extra 30 feet of steel hull in the middle and put it back together. It’s not unlike making a limo out of a Hummer.

DO YACHTS NEED FIBER?

Mega-yachts, sometimes called “floating cities,” often cost more than \$30 million and include everything from helicopter landing pads to on-deck pools, GPS navigation systems, on-demand video libraries and satellite Internet uplinks so they



The Alloptic ONT housed inside the power cabinet provides 25 Mbps Internet connectivity and telephone service to each yacht.



can stay connected from anywhere on the planet. Why go to all the trouble of bringing fiber to the slips at Rybovich, then?

Even for someone who can afford such a toy, running satellite Internet can be expensive – up to \$10 per megabyte, and as the adage goes, the rich didn't get rich by spending their money carelessly. "My weekly invoice to the captains is around 4 megabytes," Vander Wagen says. "It can cost them up to \$40 just to get my invoice when they're at sea. Each boat captain typically must adhere to a budget, so when they get to port, we wanted to give them another, more affordable option."

Rybovich's fiber offerings are automatically included in the marina's slip fee of \$3.25 per foot per day. That works out to a cool \$975 daily for the property's largest vessels.

Fiber to the slip solved another challenge as well. Although most super yachts have their own internal wireless networks, connecting to an external wireless network from inside a boat is problematic. Previously, captains could usually log on to Rybovich's Wi-Fi network from the bridge, but anyone sitting

below decks – behind the wall of the steel hull – would typically be unable to connect. Now, the boats enjoy broadband connectivity both above and below the waterline.

"This gives them the ability to plug in to the hardwired ONT and bring their systems online at a significant bandwidth while reducing their operating costs," Vander Wagen says. "Not only did it reduce our installation and maintenance spend, it helps them save money while providing a much better experience."

At nearly \$1,000 a day, that speed, and experience, counts.

VITAL STATS

Rybovich Super Yacht Marina and Refit is the premier deep-water shipbuilding and maintenance facility on the Eastern Seaboard of the United States. With the deployment of fiber-to-the-slip Internet connectivity, Rybovich has extended the state-of-the-art standard for advanced technology and equipment from its 40,000-square-foot Super Yacht Refit Center directly to the docks, and waterlines, of its guests' extraordinary vessels.

Rybovich's service facilities include hard (land) space for seven yachts up to 200 feet in length and seven in-water slips for yachts up to 300 feet. The marina consists of another 6,000 linear feet of dockage for yachts ranging in length from 130 to 300 feet.

Recently, the business went through a major expansion and systems upgrade that included FTTSlip. An on-site retail area and a residential development will also be supported by the fiber-based system. Rybovich Super Yacht Marina and Refit deployed the Alloptic GEAPON solution to 60 yacht slips on 12 acres of water surface space, as well as to its facilities throughout Rybovich's 12 acres of shore property in West Palm Beach, Fla.

Mega-yacht owners have satellite connections that they use when they're at sea. When they're docked, Rybovich's fiber-to-the-slip network provides them with better service for less money.

BROADBAND PROPERTIES

PROPERTY OF THE MONTH

In a reversal of the usual order, Internet access is delivered to the marina's GEAPON network via coaxial cable. Next summer, AT&T will deploy fiber to the property, enabling higher speeds.

Greenfield or retrofit? Both

Number of connected units: 60 yacht slips, with planned expansion to support a single-family residential development.

Date services started being delivered: Summer 2009

TECHNOLOGY

How do communications services get to the property? The region's fiber ring doesn't currently extend to the property, though an AT&T fiber deployment is planned for summer 2010. At present, Comcast delivers 25 Mbps data services to a cable modem in Rybovich's communications room.

AT&T provides a traditional telephony connection, which interfaces with the marina's internal fiber network through an Avaya phone switch. The Avaya switch tracks individual usage on each yacht, enabling Rybovich to bill owners based on the minutes they use while in port.

How are services distributed within the property? Voice and data services are delivered from the cable modem and telephone switch to an Alloptic edge200 optical line terminal (OLT), which distributes the services over a passive optical network to each yacht slip, as well as to several retail locations.

The fiber optic infrastructure runs through conduit within the marina's floating concrete piers and terminates at each slip's power cabinet. These cabinets house Alloptic home4000 ONTs, temperature-hardened units designed to provide continuous connectivity. Each port on the ONT docks directly into the bulkhead of the Eaton-manufactured power cabinet (see photo). The power cabinet is outfitted with double gaskets and replaceable, sealed doors to provide a very low-humidity environment for placement of the ONT and its battery-protected power system.

What is the FTTH technology? GEAPON

What type of gear is used? Alloptic GEAPON OLT and ONTs

How did you deal with wiring and plug access within the units?

A special area within the power cabinet was set aside for mounting the ONT, along with its power and battery backup system.

Have you provided wireless signals within units? Wi-Fi is provided from a wireless access point attached to each Alloptic ONT.

How much square footage did you have to dedicate to the network equipment? The OLT lives in the marina's communications

room, consuming just 6 rack units of an existing relay rack. The ONTs mount inside the self-drying power cabinet at each slip. Dedicated space within each cabinet for the ONT and its power/battery system is limited to 12" x 14" x 6". Overall, OLT/ONT space consumption was minimal; the fiber optic cabling itself runs within conduit under the piers.

SERVICES

Does the property have triple-play services? No. Currently, only voice and data services are provided. Although video services can be added, Rybovich's experience with the super yacht market shows little demand for these services. Typically, these "floating cities" subscribe to independent satellite programming providers, such as Dish Network or DirecTV.

Are there amenities beyond triple play, such as free wireless in common areas or entertainment systems in common rooms? Are there IP systems for managing the property, i.e., sprinklers and power management? Rybovich provides Wi-Fi and entertainment options in all common areas. IP systems for property management are currently being installed.

Who is the wireless service provider? Rybovich provides and services the internal, private network to its clients.

Do residents have a choice of service providers? No



Schematic of the revamped marina property, including retail space, restaurants and other amenities – all of which are now fiber-connected.

Who provides support? If residents have an issue or a technical challenge, whom do they call? Rybovich handles Tier 1 and 2 support. Alloptic provides Tier 3 support. Any issues with Comcast's cable modem or AT&T's telephone service in Rybovich's communications room would be troubleshooted by Rybovich and the respective service providers.

BUSINESS

Who owns the network? Rybovich paid for, owns and operates the network. The marina also manages the services delivered to the network from AT&T so that video services can be provided to the yachts if demand should arise in the future. The network in place will allow the addition of video services without disruption.

Was there a door fee? No.

Are services automatically included in the slip fees? Data services and Internet access are included in the slip fee of \$3.25 per foot per day. Phone services are billed based on usage.

Who handles billing and collection? Rybovich

How are the services marketed and by whom? Rybovich markets these technology amenities as part of its yacht slip accommodations.

What has the return been on this implementation, in dollars or otherwise? Rybovich's main focus is on customer service. We believe the implementation of fiber-to-the-slip Internet connectivity extends our high level of commitment directly to our customers at the dock and acts as both a competitive marketing tool and a way to retain our sophisticated, discriminating clientele.

ONSITE EXPERIENCE/LESSONS LEARNED

Answers are from John Vander Wagen.

What was the biggest challenge? Placing the ONTs and associated power/battery systems inside the power cabinets and designing them to be self-drying. These boxes are designed so that heat from the power source activates a self-drying cycle that ensures nearly zero humidity in the interior. Reserving space for the ONT where it would be isolated from the high-voltage areas of the cabinet (each box offers robust 480v, 240v and 208v electrical service) while allowing for heat and humidity dissipation was a challenge. In the end, Alloptic and Eaton, which manufactured the power cabinets, developed a solution that removes humidity as a byproduct of the ambient heat and ventilation.

What was the biggest success? There are two. First, the elimination of copper from the infrastructure is a huge success because it would have been extremely corrosive in our marine environment. Previously, our copper system lasted only three years in these challenging conditions. We expect that fiber will last us 10 to 20 years, and it is much more reliable overall

than copper.

The second big success is the delivery of hard-wired fiber optic services directly to each yacht slip, rather than depending on unsecured wireless methods. We selected Alloptic's GEAPON infrastructure for its low maintenance and environmental hardening in our challenging seaside environment, which includes everything from high temperatures and humidity to howling winds and hurricanes.

What would you say to owners who want to deploy a similar network? What issues should they consider before they get started?

Do it! You will reap great benefits by eliminating continuous infrastructure replacement – reducing opex and customer complaints – while providing better, differentiating services to your clients. You need to select electronics that are designed for your environment but that also integrate easily into your existing voice, video and data systems. Also, for a marina facility, you may need to be ready to provide a cable harness from the power cabinet, where the ONT interfaces are, to a demarc point on the yacht, to protect from wear and weathering.

How did the parties work together during the installation? Alloptic did most of its work directly with Rybovich. However, it was important that they coordinated with Eaton, our power cabinet provider, on an ONT placement solution. Overall, everyone worked well together, and the deployment was not disruptive to our existing operations.

What has been the response from customers? Our clientele, although transient, is extremely pleased to have reliable, wireline-based services. Prior to the Alloptic deployment, customers used their onboard satellite connections for day-to-day business – which in general was expensive and slow (approximately \$10 per megabyte fees at speeds of just 256 Kbps). Today, all mega-yachts docked at Rybovich Super Yacht Marina and Refit can securely access our dedicated, high-speed Internet and phone services at their slips to conduct business without the additional fees of expensive satellite connections. **BBP**

