

NTT WEST-OKINAWA, Japan

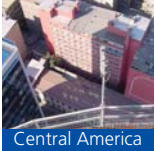


Okinawa Prefecture provides Wireless Internet service to remote islands to bridge the digital divide



Japan has one of the most sophisticated telecom infrastructures in the world. However, a group of islands to the south west of mainland Japan found themselves being left behind.

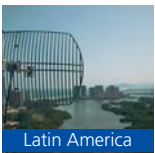
The Okinawa province consists of 49 inhabited and 110 uninhabited islands scattered over an area 1,000 km from east to west and 400km from north to south. They are rapidly becoming a popular tourist spot with many visitors coming to enjoy scuba diving, whale watching and the beautiful beaches and countryside.



About NTT WEST-OKINAWA CORPORATION

- Part of the NTT Group and the incumbent operator in Japan
- Provides Regional Telecommunication Services in Okinawa Prefecture of Japan

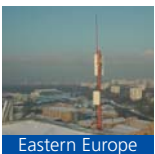
A high-speed wired broadband network does cover parts of the bigger towns on the largest islands of Okinawa but the Prefecture (government) of Okinawa realised that a widespread high-speed internet service was needed to revitalize local businesses. And so they approached the incumbent operator, NTT WEST-OKINAWA, to ask them to help bridge the digital divide.



The Challenge

- The mountainous landscape and geographical spread of the Okinawa islands meant that building a wired network to provide broadband services would be far too expensive and impractical
- Three major challenges to overcome:
 - Long-distance transmission - it is necessary to transmit large volumes of data over a distance of more than 10km
 - Frequency interference - the sea occasionally becomes like a mirror
 - Non-Line-of-Sight communication - although the subscriber area is flat there are a lot of buildings and trees there
- The network needs to be able to withstand 180km / hour typhoons and the accompanying severe rain

NTT WEST-OKINAWA provides Regional Telecommunication Services in the Okinawa prefecture of Japan. Like most telecommunications providers, it cannot build a business case for building fixed wired DSL networks using optical fiber cable in areas where there are few customers. It would be extremely expensive and impractical to build a wired infrastructure to cover the hilly and spread-out islands of Okinawa.



NTT WEST-OKINAWA realised that they needed to have some kind of wireless broadband solution.



The Solution

- A Wireless Broadband network built using Alvarion's pre-WiMAX BreezeACCESS VL product suite

Broadband wireless access (BWA) connectivity is proving to be an extremely affordable alternative for all kinds of communities across the world. Wireless networks require little initial investment - compared with laying an undersea optical fiber cable - and have low network operating costs. They can be built quickly and affordably, and allow for modular expansion as the customer base, their associated capacity needs and service revenues grow. Just as importantly, BWA networks are especially attractive in areas without existing wired infrastructure since they don't require any digging. And after installing a single base station, new customers in that area can be connected in a matter of minutes.



The Result

- Rapid installation and network connection for new subscribers
- Broadband wireless replaced the only alternative - an ISDN connection which was stressful and time consuming and took several minutes to download a single page.
- Alvarion's wireless broadband network has exceeded what would be possible with a wired network. The network has greatly changed the way people work and live.



www.ntt-west-okinawa.co.jp

Customer type: Incumbent operator building regional network

Country / Region: Japan

Solution: BreezeACCESS® VL, BreezeACCESS® VL B&B

Application: Broadband services



"We are very satisfied with our Alvarion wireless broadband network. It was extremely cost-effective and easy to build and, in our opinion, has exceeded what would be possible with a wired network. The network has greatly changed the work and living environment in these remote islands which now have a broadband infrastructure comparable with urban areas. This project really has eliminated the Digital Divide. We are now exploring the possibility of extending the network to other islands in Okinawa."

Mr. Eishou Nakamoto, Vice President, NTT WEST-OKINAWA CORPORATION

NTT WEST-OKINAWA tested various solutions for providing broadband to these remote islands including a 10 month field trial in 2005 on Ishigaki island. During severe typhoon season, tests showed that Alvarion's BreezeACCESS VL was able to cope with such severe weather situations.

NTT WEST-OKINAWA had three major challenges to overcome. Their first challenge was to transmit large volumes of data over a distance of more than 10km (long-distance transmission). Secondly, the sea occasionally becomes like a mirror (frequency interference). Thirdly, although the subscriber area is flat there are a lot of buildings and trees (out of sight communication). Therefore, they were convinced that Alvarion's OFDM technology was the ideal solution.

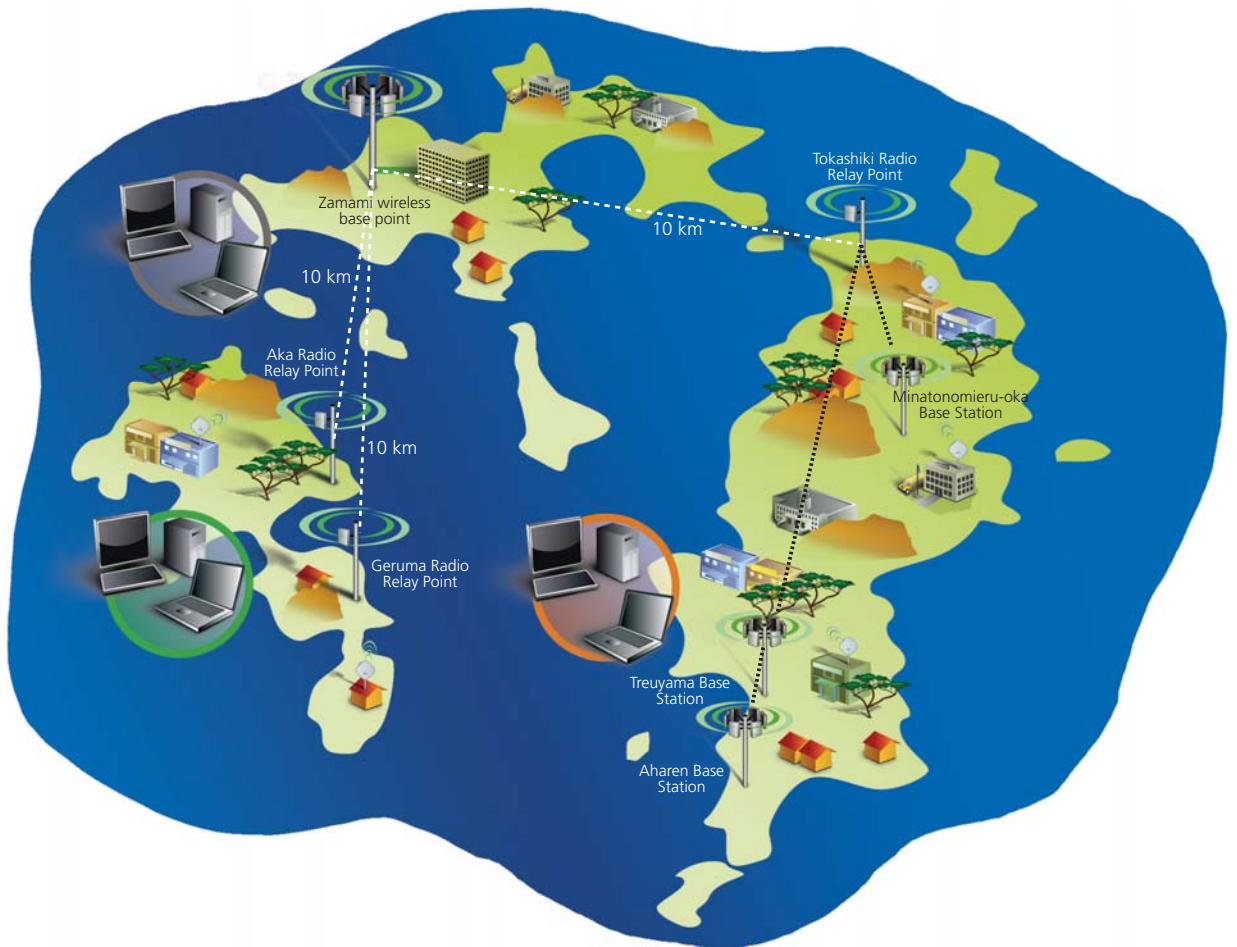
The Okinawa network

In 2006 NTT WEST-OKINAWA CORPORATION chose Alvarion's BreezeACCESS VL suite to build a Wireless Broadband network to cover the remote islands of Okinawa including Tokashiki, Zamami, Aka and Geruma.

The optical fiber cable comes from the NTT WEST Zamami telephone switching station to the Zamami wireless base point. From there, there is a 10km hop to each radio relay point on the islands of Tokashiki, Aka and Geruma. High-speed connections of 20Mbps are possible for each island.

NTT WEST-OKINAWA also needed to ensure the network could survive the typhoon which hits Okinawa every year with speeds of up to 180 km/hour and accompanying severe rain. And so it decided to install double the number of base stations needed to cover the area.

Within the first month, more than 80% of households signed up for the network. Until broadband services came, the only option was dial-up connection which is extremely stressful and takes few minutes to download just one page. Now schools, businesses, residents, government offices and those involved with tourism can enjoy the benefits of broadband wireless access.



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