Niseko International ICT Resort Town Development Project – Winter Joint Trial Wi-Fi Case Study

Niseko Town and seven partner companies, including Cisco, implement the trial provision of wireless LAN and a ski resort app at the Niseko Village Ski Resort, as well as advanced initiatives that make secondary use of the collected log data

Installation Background and Challenges

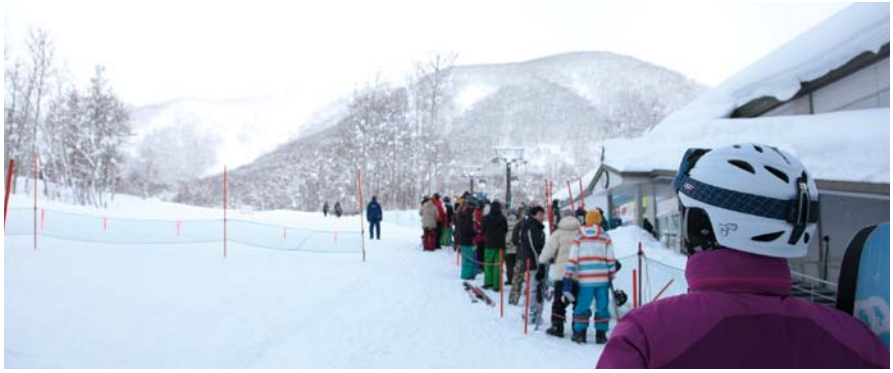
- The town of Niseko places great importance on environmental sustainability and information sharing and has already promoted initiatives, including the establishment of an optical communications network.
- Many overseas tourists have requested Wi-Fi at the ski resort and other locations.
- Niseko is sandwiched between a national park and a quasi-national park, thus installing new structures at the resort was problematic. Winter climate is harsh and it was unknown whether stable communication would be possible with the set up of outdoor wireless LAN.
- For the trial project, access points were installed at the foot and summit areas of the Niseko Village Resort, and a connection was made from the base to the summit via long-range wireless transmission using a Wi-Fi bridge. Verification testing was carried out involving the provision of a terrain map, current position, avalanche and other information to the users of the ski resort using a special app. In order to provide a stable service under harsh conditions, the ski resort employed Cisco's outdoor Wi-Fi solution, which has an outstanding global track record.

Installation Solution

- Cisco Wireless LAN Solution
  - Cisco Aironet BR1300 Series Outdoor access point/bridge
  - Cisco Aironet 1260 Series Access point
  - Cisco Aironet 1550 Series Outdoor access point
  - Cisco 2500 Series Wireless Controller
  - Cisco Wireless Control System (WCS)
  - Cisco Identity Services Engine (ISE)

Benefits of Installation

- Cisco's Wi-Fi solution has enabled stable communication, even in harsh outdoor conditions. The current trial users are provided with a unique app with which they can check their current position or ski track on an illustrated map, and obtain information in several languages such as the "Niseko Rules" and avalanche information for safe skiing. This has enhanced user convenience and safety.
- An activity log of app users who have granted permission has been stored in a database. The results of analysis will be used to draw up tourism and accident reduction policies, and in the near future to explore a new business model using data such as the effectiveness of issuing coupons, the number of customer users, and customer expectations. Through such measures, the aim is to further enhance the value of the Niseko Town brand as an international resort.
- Spurred on by the success of this project, Niseko is also considering the provision of Wi-Fi for all areas of the town. It is hoped that this will enhance tourist convenience and invigorate the resort through multilingual communications, while also serving to revitalize the regional community.



As one of the world's leading resorts, 1.5 million tourists visit the town of Niseko every year. A joint trial involving industry, government and academia has been conducted at the ski resort, involving the provision of a wireless LAN environment and special app, and on January 19, 2013 a test service was launched. Cisco's outdoor Wi-Fi solution was used to construct a wireless LAN environment. The test verified that stable communications were possible even in Niseko's harsh environment, with its low temperatures and heavy snowfall. Users of the ski resort were provided with a unique multi-lingual app, which can be used to display their current position or ski track, and deliver avalanche and other information. An activity log of users who have granted permission is being collected and analyzed to draw up new tourism and accident prevention measures, and also to explore the potential for a new business model. Using these initiatives to enhance its brand value as an international resort, Niseko is looking to provide Wi-Fi in all areas of the town, as part of creating a smart, comfortable and secure town by utilizing ICT.

Wi-Fi Verification Testing at the Winter Ski Resort Realized Through the Combined Efforts of Industry, Government and Academia

On January 19, 2013 at the Hokkaido Niseko Village Ski Resort, the "Niseko Winter Joint Trial Wi-Fi Environment & App Usage - Opening Ceremony" was held. This is a project involving the collaboration of industry, the government, and academia held at the initiative of the Niseko International ICT Resort Town Development Committee. The project has been realized through the combined efforts of the town of Niseko and the following participants: Nippon Telegraph and Telephone East Corporation ("NTT East"), NTT Communications Corporation ("NTT Communications"), Kyowa Exeo Corporation ("Kyowa Exeo"), Navitime Japan Co., Ltd. ("Navitime"), Niseko Village Co., Ltd. ("Niseko Village"), Professor Hashimoto of Hokkaido University Graduate School of Letters, and Cisco Systems G.K. ("Cisco").
A description of the project is given below.

First, Wi-Fi access points were installed at the foot of the Niseko Village Ski Resort (gondola foot station and the area in front of the Hilton Hotel) and at the summit area (gondola summit station, patrol base, The Look Out Café), and these were then connected to the Internet. These were provided to tourists free of charge, allowing them to access the Internet on their mobile devices via Wi-Fi. A special app displaying a terrain map of all the mountains around Niseko was also provided. This has enabled users to check their current position and ski track within the Niseko Village Ski Resort on an illustrated terrain map as well as obtain information in several languages such as the "Niseko Rules" and avalanche information for safe skiing.
Mr. Kenya Katayama, Mayor of Niseko, says "I think it is Niseko's mission to provide all of our visitors with a high-quality information-sharing infrastructure, while also maintaining

"We were able to achieve wonderful results in this project. Spurred on by this, in future we aim to bring Wi-Fi to the whole of Niseko town."

Mayor of Niseko Town

Mr. Kenya Katayama

"The temperature is lower than usual this year, and there is also heavy snowfall. If it can operate steadily in these conditions, it should be possible to push on confidently with future development."

Niseko Town Planning & Environment Division - Chief

Mr. Kazuhiro Fukumura

"The response is much better than I'd imagined. I think the supplied app will also provide important content."

Manager of Niseko Village Co., Ltd. Marketing Section

Mr. Kitami Ito

Wi-Fi bridge (Cisco BR1300) installed at the patrol base and heliport. An Internet connection is made from the heliport at the foot of the mountain to the patrol base at the summit area 3.3km away. Parabolic and Yagi antennas with strong directivity were used in combination to provide redundancy.

Outdoor access point (Cisco Aironet 1552E) installed at the foot area. Outstanding weather resistance and durability were required due to the extreme cold and heavy snowfall in this area.

a pleasing environment and landscape." He explains that the current trial is an extension of the initiatives already taken, such as the establishment of an optical communications network covering all areas of the town.

Kazuhiro Fukumura, Chief of the Niseko Town Planning & Environment Section says "Niseko receives many visitors from overseas, and there was the issue that the communications environment within Japan was difficult for them to use.". Although hotels are equipped with wired Internet, there were only limited places where Wi-Fi could be used outdoors, and it was difficult to obtain sufficient speed with mobile 3G. "We were seeing an increase in the number of requests for high-speed Wi-Fi communications outdoors, mainly from our overseas customers."

In March 2012, the town of Niseko began discussions to address this issue. In April, an "Exchange of Views Concerning a High-Speed Communications Environment" was held, and thereafter views continued to be exchanged and surveys were conducted. In August of the same year a decision was taken to conduct a trial, and in September the project was launched. This was a joint project including the participation of the committee members listed above. This led to the start of a test service on January 19, 2013.

The issue was to achieve stable operation in harsh conditions Cisco's outdoor Wi-Fi solution made this possible

The configuration of the network constructed in this project is shown in the diagram below. First, the Cisco Aironet 1550 Series outdoor access point was installed at the foot area, providing Wi-Fi access around the gondola foot station and the area in front of the Hilton Hotel. Meanwhile, for the summit area, a router was installed at the town heliport, and this was connected to NTT Communications' OCN Internet service. From here, a Wi-Fi bridge employing the Cisco BR1300 Series was used to make a connection to the patrol base close to the Niseko mountain summit area approximately 3.3 kilometers away. At the patrol base, the Cisco 2500 Series Wireless Controller was installed, taking on the role of the network hub. From here, a further connection was made to the Niseko gondola summit and The Look Out Café via a Wi-Fi bridge to enable Wi-Fi access in this area.

"Niseko is sandwiched between a national park and a quasi-national park, and it was not possible to install structures in the national park. Even obtaining permission for the quasi-national park would take about a year," says Mr. Fukumura. As it would have been difficult to install wired facilities within the premises of the Niseko Village Resort, due to the need to preserve the natural environment, it was decided to use a Wi-Fi bridge connection, he explains.

However, this was not the only problem facing the project. In winter, the temperature in Niseko drops and there is heavy snowfall. Blizzards are frequent, and a phenomenon known as a "snow cornice", or overhanging snow deposited on the roofs of buildings, is a common occurrence. For outdoor Wi-Fi to be usable in Niseko would require weather resistance and durability, enabling stable communications even in such conditions. There was no precedent in Japan.

It was Cisco's group of products mentioned above that met this demand. "Cisco's outdoor access points have already achieved good results overseas, and have established technology that can be used even in a snowy mountain environment," says Hama Takayuki, Manager of the Corporate Sales Department in the Hokkaido branch of NTT East, which is participating in this project as the committee's lead company. By incorporating the water repellent technology developed by NTT, ice and snow buildup can be kept to a minimum, he explains. "This project was realized by bringing together the sophisticated technologies of the participating companies."

So how did it feel to use the Wi-Fi installed in this project? "The response is much better than I'd imagined," says Kitami Ito, in charge of the Marketing Section at Niseko Village. He also notes that the app supplied by Navitime is extremely convenient. "Being able to immediately check your current position makes it difficult to get lost, even in the complex terrain at Niseko, and you can immediately view avalanche and other information as well. I think this is an important differentiating factor for the Niseko Village Ski Resort."

After actually trying it out, Mr. Fukumura is also very impressed by the smooth access. The temperature is lower than usual this year, and there is also heavy snowfall. If it can operate steadily in these conditions, it should be possible to go forward with confidence with future development, he explains happily.

User Activity Log Also Collected and Analyzed Use of "Big Data" Set to Strengthen Brand

The Niseko trial demonstrated that a stable wireless LAN environment can be achieved even

"Cisco's outdoor access points have established a technology that can be used even in a snowy mountain environment. By incorporating the water repellent technology developed by NTT, ice and snow buildup can be kept to the minimum."

NTT East Corporation
(Committee Lead Company/in charge of Project Management)
Senior Manager,Corporate Business,Hokkaido Branch

Mr. Takayuki Hama

"Use of the Internet has changed enormously with the shift to smartphones. With this project, we hope that we will be able to verify a new way of using the Internet."

NTT Communications Corporation
(Provides Internet connection)
Senior Manager
Hokkaido Branch

Mr. Seiichiro Niinuma

"When installing the equipment, we thought firstly about stable operation, and also about how to avoid the equipment standing out and ensuring safety."

Kyowa Exeo Corporation
(in charge of Equipment Installation)
Hokkaido Branch Manager

Mr. Makoto Hayashi

"Niseko is a resort with a very large number of tourists from overseas. Because of this, we thought carefully about how to make the app easy to use."

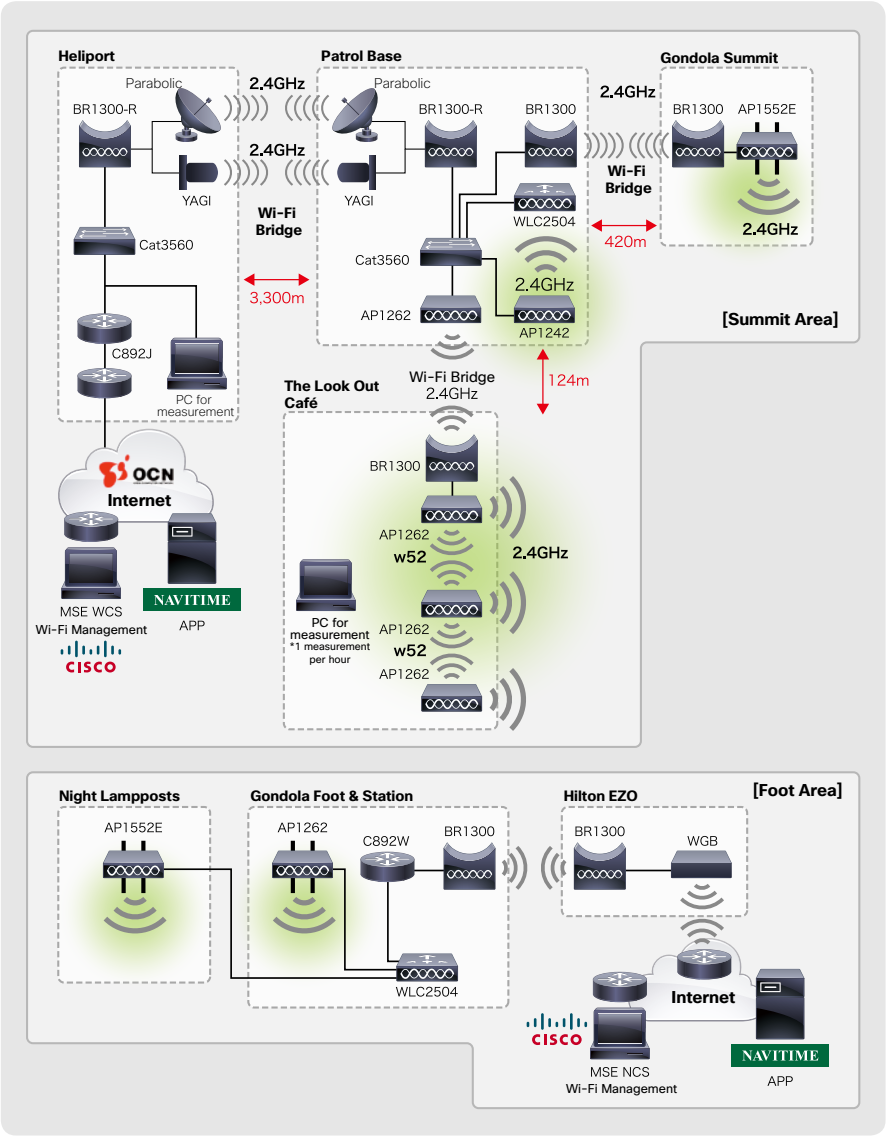
NAVITIME JAPAN Co., Ltd.
(in charge of App Development)
General Manager, Planning & Marketing

Mr. Masashi Fujisawa

"I've never seen a project like this before. If we make effective use of 'big data', I think it will enhance Niseko's brand value."

Hokkaido University
Graduate School of Letters,
Professor,

Yuichi Hashimoto, Ph.D.



The network configuration in the "Winter Joint Trial Wi-Fi Environment". The heliport at the foot of the mountain is equipped with an Internet service, and this is connected to the patrol base near the mountain summit via a Wi-Fi bridge, and further connected to the Niseko gondola summit and The Look Out Café via a Wi-Fi bridge. In addition, a Wi-Fi mesh is used in The Look Out Café. Cisco's Wi-Fi products are used for the bridge and access points.

in a harsh snowy mountain environment, so arguably it has great significance. But that's not all: there is one more point that deserves attention. In some respects, this project was an experimental attempt to utilize "big data."

First, consent is obtained from the app user to collect data, and then an activity log is obtained. This log is tied to the attribute information entered by the user when they start using the app (nationality, gender and age group), and is stored in a database. By analyzing this data, it is possible to identify which people with certain attributes are active in which areas of the ski resort. The aim is to use the results of the analysis to draw up new tourism and accident reduction policies, and to utilize them in developing a new business model using data such as the effectiveness of issuing coupons at different facilities in the ski resort and user trends.

"A project such as this, involving geospatial information, is something I've never seen before in Japan," says Professor Yuichi Hashimoto of Hokkaido University, who specializes in the science of geodata and is in charge of data analysis in this project. In 2007, the government enacted the Basic Act on the Advancement of Utilizing Geospatial Information, and subsequently two basic plans were drafted. However, Niseko's initiative is at the cutting edge of this trend, he points out. "Establishing the actual analysis method is an issue for the future, and if we can make effective use of this kind of big data, it will be possible to further enhance safety in the resort and provide concierge-style services. As a result, I think this will enhance Niseko's brand value."

Mr. Ito of Niseko Village also has high expectations for the utilization of big data. It can reveal which areas of the ski resort get crowded at which times, and which people from which country like to ski on a particular slope. He notes that it should be possible to use this kind of data in sales and marketing.

Screenshots of wireless LAN app. An illustrated map allows the user to check their current position and ski track. The "Niseko Rules" and hazard information, including avalanche information, is also provided in several languages to ensure the safe use of the ski resort.
*Provided by Navitime Japan Co., Ltd.

Signing ceremony. From left to right: Dr. Keisuke Onishi (President and CEO, NAVITIME JAPAN Co., Ltd.), Hiroyuki Tsutumi (Vice President of Cisco Systems), Ms. Long Shiau Wee (Niseko Village CEO), Mr. Kenya Katayama (Mayor of Niseko Town), Mr. Koichi Mino (General Manager, Hokkaido Branch, NTT East Corporation), Mr. Itaru Gotou (General Manager, Hokkaido Branch, NTT Communications Corporation), Mr. Makoto Hayashi (Hokkaido Branch Manager, Kyowa Exeo Corporation)

"What is important is to make full use of the information, rather than being passive participants," says Mr. Fukumura. This project has established a basis for providing and collecting information, and in future the aim is to establish a business-generating model to send out to the world, not just Japan, he says of future ambitions. "We also want to maximize the expertise of private sector companies as much as possible. I'm already excited about what kind of model we might build in the future."

Spurred on by the success of this project, the future aim is to bring Wi-Fi to the whole town

The services provided by this project will only be available until the end of March 2013, but as the next step, discussion is now underway towards redeveloping the town through the use of ICT, targeting all areas of Niseko.

"In this project we were able to achieve wonderful results thanks to the enthusiasm and efforts of all the participant companies, and spurred on by this, in the future we aim to bring Wi-Fi to the whole of Niseko," says Mayor Mr. Katayama. He explains that in the future, they would like to be able to provide the necessary information to users in their mother tongue, anywhere in town. "For our customers visiting from overseas, it is not necessarily desirable to have signs in their mother tongue. This is because they want to fully savor the nature and culture of Niseko. However, by using the Internet we can provide information without destroying the scenery. If there are more places where Wi-Fi can be used, the whole town will become like a museum."

If tourists take this experience home with them, Niseko's reputation as a resort should be enhanced even further. It also becomes easier to transmit the collected information outside Niseko. By accessing that information, they should return to Niseko with an even greater sense of anticipation.

At the same time, it is also hoped that information sharing in community life will reach an even higher level. Niseko has actively promoted the sharing of information with the regional community for 18 years, and in 2001 it enacted a "Basic Code on Urban Development", which clearly promotes information sharing. If Wi-Fi becomes available in all areas of the town, this would increase the options for the information-sharing infrastructure, and could revitalize the community even further.

"I'd like to package up the initiatives being undertaken by Niseko to create a standard that can be sent out to Japan and the world. To achieve this, I would like to ask for the continued support of Cisco Systems" (Mr. Katayama).

Niseko Town (Hokkaido)

Niseko is a resort town at the foot of Mount Youtei. Each year, it welcomes around 1.5 million visitors, primarily skiers in the winter season, who are drawn by its scenic beauty, including powder snow and intricate mountain landscape. In recent years, Niseko has also become increasingly well known as an international resort, and there has been a sharp increase in the number of tourists from overseas. As well as the preservation of the environment and scenery, the town's active promotion of information sharing is a major feature. The current trial project is being promoted as one part of this process, and in the future Niseko is looking to bring Wi-Fi to all areas of the town.

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