

Public Wi-Fi Initiatives at NTT DOCOMO

Tetsuya Ninagawa and Kosuke HIRAMA

Abstract

Smartphone use and data traffic have increased dramatically, and to cope with this, NTT DOCOMO is placing increasing importance on Wi-Fi services with the aim of raising customer satisfaction and accelerating data offloading to reduce network load. This article outlines NTT DOCOMO's public Wi-Fi service and introduces *expanded coverage*, *free-access campaign*, and *enhanced convenience* as specific examples of how NTT DOCOMO is promoting Wi-Fi use among its customers.

1. Overview of Wi-Fi environment

The recent spread of smartphones in society has led to an increasing number of customers using devices equipped with Wi-Fi functions. In response to this trend, NTT DOCOMO is paying increasing attention to Wi-Fi with the aim of providing a comfortable communications environment and raising customer satisfaction.

At the same time, mobile data traffic has been increasing year on year in parallel with this proliferation of smartphones. At NTT DOCOMO, traffic is slated to increase by about 12 times by fiscal year 2015 compared to 2011 levels [1]. To respond effectively to this dramatic increase in traffic, NTT DOCOMO's plan is to provide high-quality communications by expanding capacity through a migration to Xi (crossy) LTE (Long Term Evolution) services, adopting smaller zones, controlling the transmission speeds of heavy users, and reducing network load through use of Wi-Fi (data offloading).

2. Features of docomo Wi-Fi

NTT DOCOMO launched its Mzone public Wi-Fi service in 2002. It was initially assumed that this service would be used for data communications via personal computers. Positioned as a complement to FOMA 3G (third generation) circuits, Mzone marked the start of the provision of a high-speed communication service, although the locations providing Mzone

were initially limited. Then, with the aim of enhancing convenience and increasing usage, NTT DOCOMO launched domestic roaming for Mzone in 2003, international roaming and the establishment of Wi-Fi locations within subway stations in 2004, and use within railway cars in 2006. In addition, the service name was changed to docomo Wi-Fi in 2012.

To provide service in more locations, docomo Wi-Fi makes frequent use of shared access points installed by NTT Broadband Platform Incorporated (NTT BP) for more efficient operations. Given that NTT DOCOMO and other Wi-Fi providers are expanding their Wi-Fi coverage, the renting and sharing of NTT BP's access points in this way prevents the inefficient construction of facilities by multiple providers at the same location while also avoiding the radio interference that would result from the operation of multiple access points.

3. Promotion of docomo Wi-Fi

As described above, NTT DOCOMO is placing increasing importance on Wi-Fi with the aim of raising customer satisfaction and accelerating data offloading. Specifically, the company is undertaking a variety of initiatives to get even more customers to use and enjoy Wi-Fi under even more scenarios.

3.1 Expanded coverage

As of the end of March 2012, docomo Wi-Fi use was available at around 8400 access points

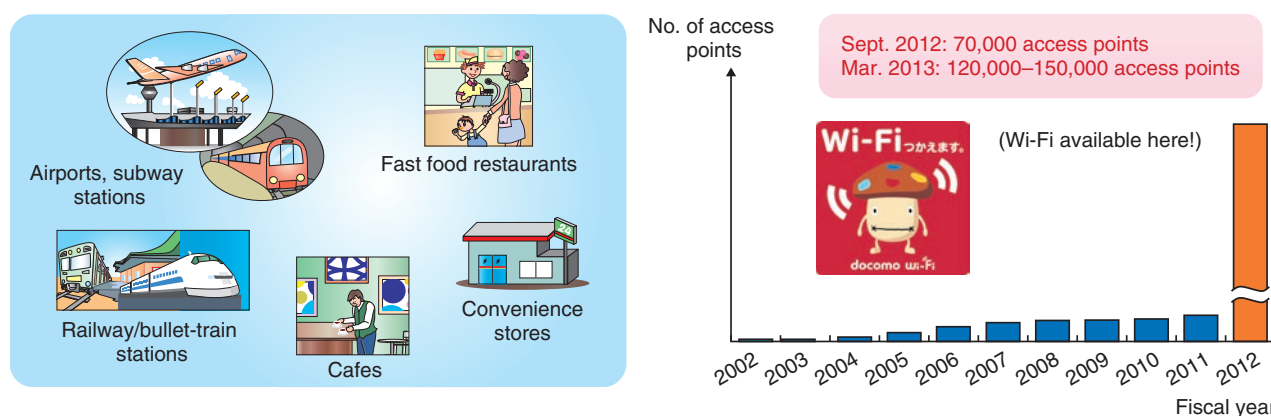


Fig. 1. docomo Wi-Fi locations and number of access points.

throughout Japan mainly in train stations, airports, cafes, fast food restaurants, and convenience stores. Since then, NTT DOCOMO has been working to expand Wi-Fi locations to commercial facilities and small eating and drinking establishments and has rapidly increased the number of access points to 70,400 as of the end of September 2012. The plan is to continue with this expansion of Wi-Fi coverage (**Fig. 1**). In this expansion, NTT DOCOMO selects the optimum method of installing an access point at a certain location in collaboration with NTT BP from the viewpoints of quality and prompt deployment. For example, either an optical circuit or Xi circuit can be used as a backhaul line depending on the volume of Wi-Fi traffic estimated for the location in question. In short, optical circuits can ensure sufficient bandwidth for high traffic locations, while using Xi circuits for small eating and drinking establishments can facilitate the prompt expansion of Wi-Fi locations.

3.2 Free-access campaign

For NTT DOCOMO customers, the docomo Wi-Fi service is mainly provided as an optional ISP service such as sp-mode and mopera at a monthly fee of 315 yen (tax included). Customers can apply for docomo Wi-Fi at docomo shops or by telephone, personal computer, sp-mode, etc. Individuals not having an NTT DOCOMO circuit or ISP contract can use docomo Wi-Fi for a monthly fee of 1575 yen (tax included).

To further promote the use of docomo Wi-Fi, NTT DOCOMO is conducting a *free-access forever* campaign from September 1, 2012 to March 31, 2014 in which the monthly fee of 315 yen will be waived for customers subscribing to a designated packet flat-rate

service, an ISP service, and an ISP optional service. These customers will continue to receive free access even after the campaign period ends provided that they continue to satisfy applicable conditions.

3.3 Enhanced convenience

Since most docomo Wi-Fi users access the service not from personal computers but from smartphones and tablets, we started providing an app called *docomo Wi-Fi simple connect* for Android smartphones and tablets in January 2012. With this app, there is no need for customers to make service set identification (SSID) or security settings on their own at the startup of service, and ID/password settings for connecting to docomo Wi-Fi are greatly simplified. The app enables a customer at a docomo Wi-Fi location to connect to the service by simply tapping a docomo Wi-Fi widget on the screen. This app has significantly improved the ease of using docomo Wi-Fi (**Fig. 2**).

4. Future activities

Wi-Fi is becoming all the more important for making the communications environment even more comfortable and enjoyable for users. At the time of the Great East Japan Earthquake in March 2011, the NTT Group made Wi-Fi access points available free of charge in the stricken area. In the same way, NTT DOCOMO is working to make docomo Wi-Fi available at the time of a disaster as a network that complements FOMA and Xi. In addition, docomo Wi-Fi already provides a filtering function that restricts access to potentially harmful sites, and in the future, NTT DOCOMO plans to expand its efforts in

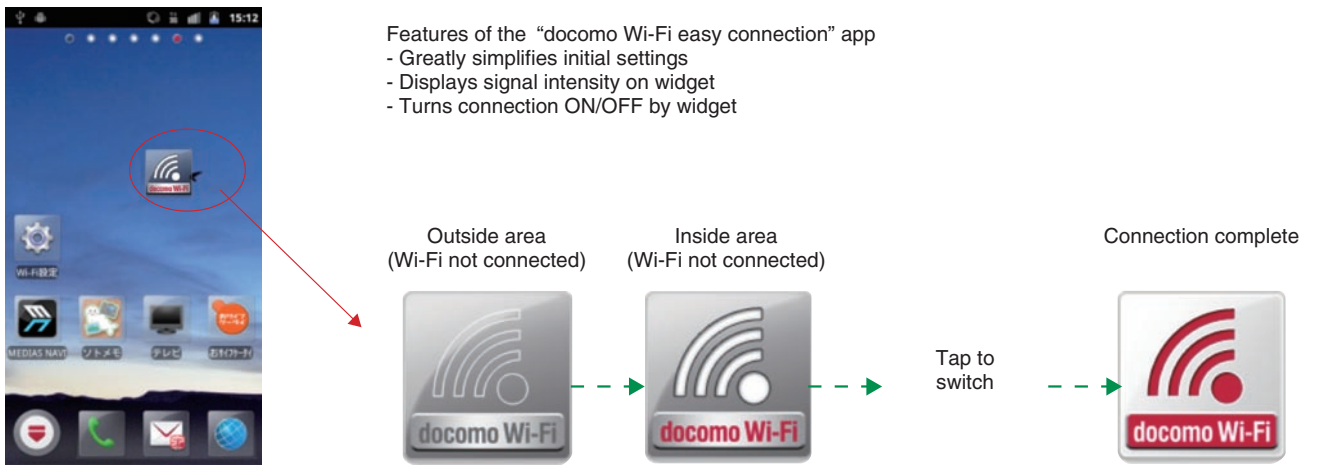


Fig. 2. Features of the *docomo Wi-Fi simple connect* app.

attracting even more customers to docomo Wi-Fi by setting up an environment in which Wi-Fi can be used in a safe and secure manner and improving its affinity with FOMA and Xi services.

Reference

- [1] NTT DOCOMO Medium Term Vision 2015 Report. http://www.nttdocomo.com/about/core_foundation/core_foundation.pdf



Tetsuya Ninagawa

Director, Ubiquitous Services Department, NTT DOCOMO.
 He joined NTT Mobile Communications Network (now NTT DOCOMO) in 1993 and worked on network planning and corporate strategies. He is currently engaged in planning of public and in-house Wi-Fi services.



Kosuke Hirama

Manager, Ubiquitous Services Department, NTT DOCOMO.
 He joined NTT DOCOMO in 2000 and worked on development of 2G and 3G packet communication core networks. He is currently engaged in planning of the public Wi-Fi service.