

Activity Report of Asia-Pacific Medical Network Project in Kyushu University Hospital : Vol.4

清水, 周次
九州大学病院

中島, 直樹
九州大学病院

<https://doi.org/10.15017/10572>

出版情報 : 「超高速ネットワークを利用したアジア遠隔医療プロジェクト」 TEMDEC活動報告. 4, pp.1-103, 2008-04. AQUA事務局

バージョン :

権利関係 :

3. Network news

This chapter introduces a schematic of the network utilized by the AQUA Project. Figure 1 shows the regional Internet components in use as at March 2008

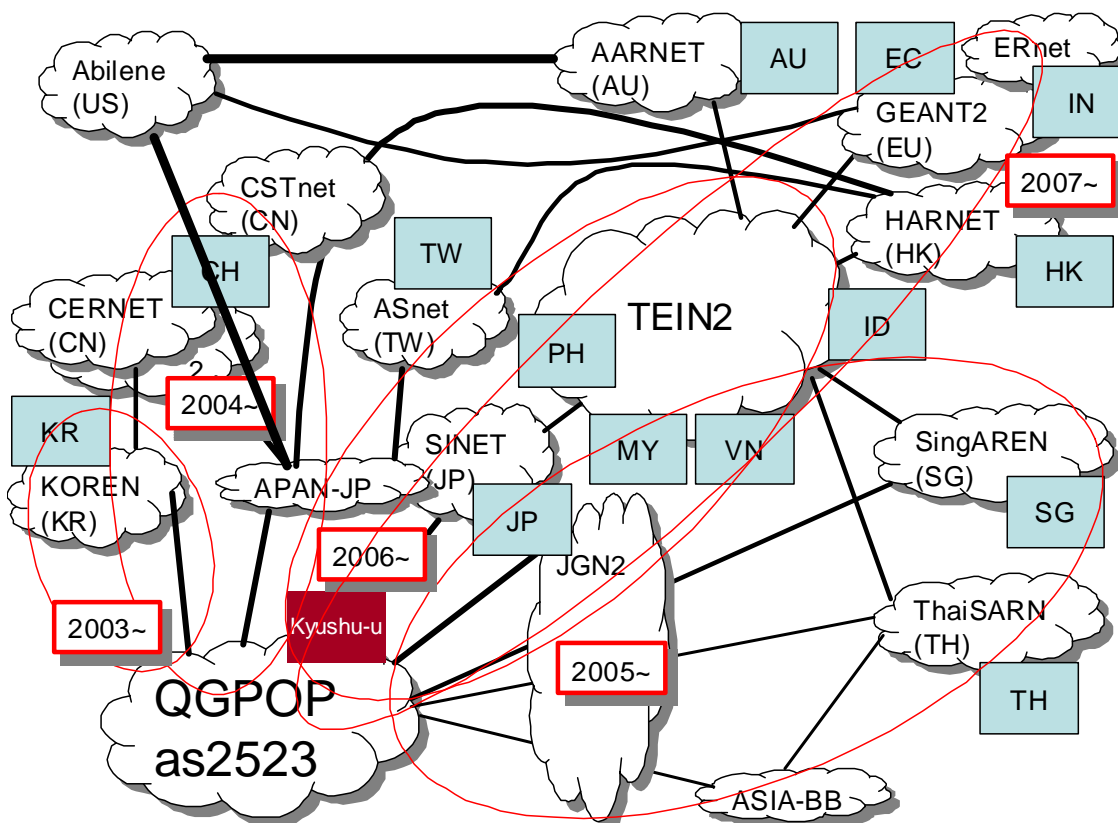


Fig. 1: The 2008 AQUA Project Internet Environment

The Internet environment of Kyushu University is via SINET and QGPOP. Kyushu University Hospital is a subsidiary of Kyushu University and has access to these connections. QGPOP is connected at very high speed to many countries in Asia, as well as to the worldwide advanced Research and Education (R&E) network which provides the primary connectivity for Kyushu University. Since the stability of R&E does not exceed that of commodity networks, QGPOP is used to avoid instability and potential disruptions of the Kyushu University network. Areas not connected by QGPOP can be reached from Kyushu University via SINET. Though SINET also focuses on Research and Education, it requires additional policy considerations; therefore QGPOP remains the primary connection.

The following summary describes the development of the Internet system used by AQUA Project until 2006. Prior to 2003, high-speed Internet access for research and education from Japan to the United States and Taiwan had been available through APAN. In 2003, a 1G Internet service between Japan and Korea was started by APII. Rapid Internet access from Japan to China became possible in 2004 through NICT and to Korea and China through APII, enabling

experiments to be conducted with others in China. In 2005, JGN2 of NICT initiated high-speed Internet access to Thailand and Singapore. New activities with Singapore and Thailand were initiated that made use of these high-speed links.

Beginning in 2006, the TEIN2 connection provided 620 Mbps links to NOCs in Singapore and Hong Kong, 150Mbps links to Malaysia and Thailand through the NOCs, and 45 Mbps links to Vietnam and Indonesia. The Philippines has also been connected at 150Mbps via TEIN2. Australia is also successfully connected at 1Gbps via the United States, and an additional 620Mbps link with short latency is available through TEIN2.

Since high-bandwidth links of 620Mbps, 150Mbps and 45Mbps are available only to NOCs, the final obstacle for AQUA is to improve local NOC connectivity to domestic Internet services. The Hong Kong NOC, for example, has many high-speed links, but because HARNET, a Hong Kong domestic Internet group does not connect to TEIN2 with sufficient speed, there has been problems connecting to HKCU (Hong Kong Chinese University), despite the presence of a high-speed link to Japan. HKCU has a 1G link to CSTnet, so the AQUA project used this high-speed link for experiments with HKCU instead of the TEIN2 link. Also, in Singapore, SingAREN does not link with adequate speed to TEIN2 NOC, so the JGN2 link is used for experiments with the NUS (National University of Singapore). However, the link speed of JGN2 to Thailand is just 45Mbps, so even though there is no direct TEIN2 connection to Thailand from Japan, the TEIN2 link is sometimes utilized to provide higher bandwidth.

In 2007, the AQUA's activities have been extended to UA and the EU. During APAN at Xian in August 2007, Germany and France were connected. A demonstration between Kyushu University Hospital and Italy was accomplished. At APAN in Hawaii in January 2008, UCI was connected. From Japan, SINET3 reaches Los-Angers and New York and most packets to inside the UA are delivered through Los-Angeles and packets to the EU are delivered through New York. The bandwidth between Japan and the UA and between the US and EU are 10Gbps. Thus there is no problem about bandwidth.

In January 2007, India joined AQUA. The network path from Japan to India is supported by ERNET which is transited through the Italy NOC of GEANT2. The bandwidth is 45Mbps. However, we have never been successful even getting 30Mbps transmission over this 45Mbps link. We are still investigating the problem.

Fig-2 shows the AQUA partners inside Japan.

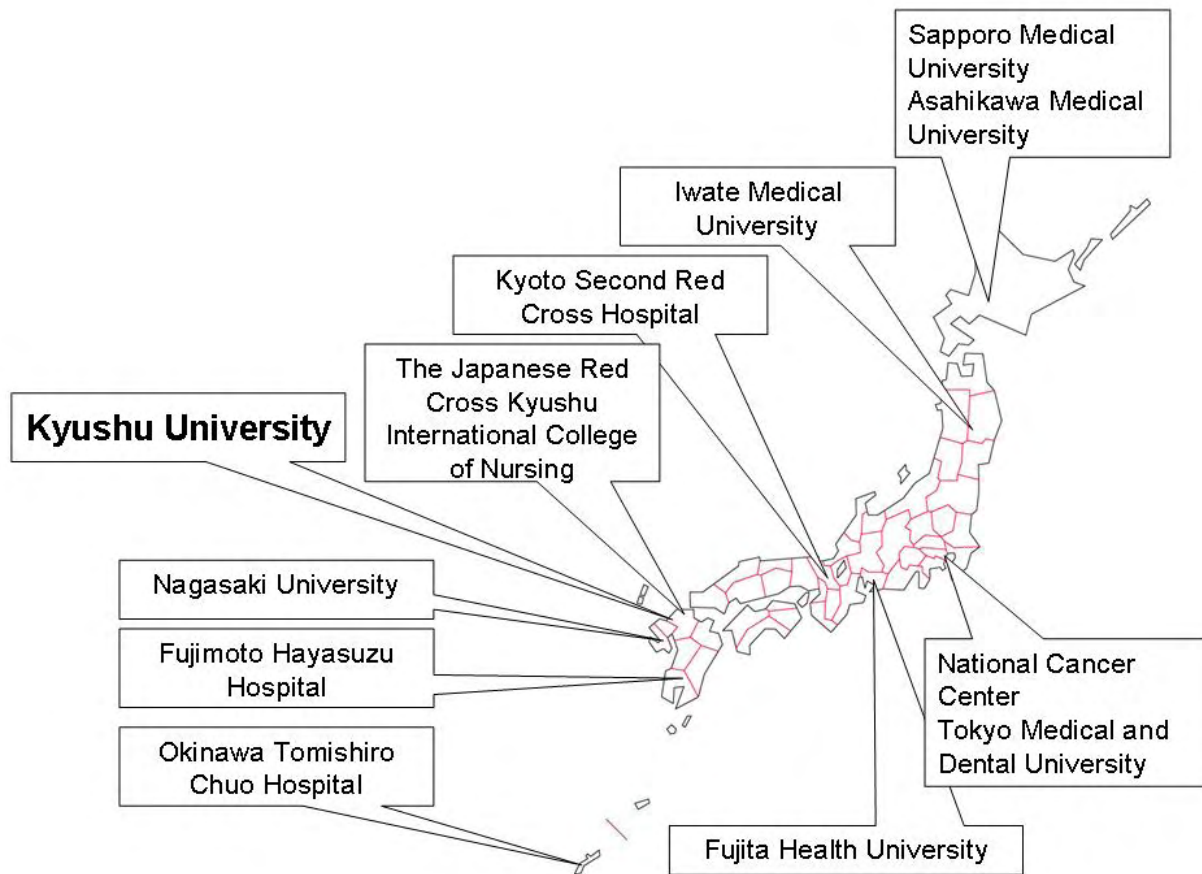


Fig-2: AQUA Partners in Japan

In Japan we use several kinds of networks. These are mainly JGN2, SINET3 and another circuits such those of local governments or NTT West's commercial link. The Medical School of Sapporo, Asahikawa, Iwate , Fujimoto Hayasuzu Hospital use JGN2. The National Cancer Center, Tokyo Medical and Dental University, Fujita Health University and Nagasaki University use SINET3. The Kyoto Second Red Cross Hospital and Tomishiro Central Hospital use NTT West's commercial links, the so called "Flets Premium". All of these networks can support 30Mbps traffic from DVTS.