CONNECT:
Bridging the Digital Divide with Bayanihanets

Small and medium-sized Internet service providers and cable TV operators in the Philippines are a potentially powerful force that may be harnessed to provide high-speed yet affordable Internet connectivity in underserved areas. CONNECT (Cable Operators Neutral Network Exchange for Community Transformation) aims to explore various capacity-building initiatives jointly with cable operators to provide affordable Internet access and offer new and socially-relevant services. In this case study, we share how bottom-up community networks called bayanihanets may play a complementary role in empowering digitally-underserved communities, and interconnecting these with small and medium-sized Internet service providers.

Public infrastructure development has traditionally been driven through major government efforts and spending, or through significant private sector outlay with an expectation of return on investment. Inspired however by alternative models such as the successful guifi.net effort in Spain, we wanted to explore whether a similar bottom-up, community-driven effort leveraging a local tradition of cooperation and volunteerism called bayanihan could help bridge the digital divide.

CONNECT's cable operator partner Telmarc Corporation surveyed barangays (villages) in the vicinity of Kalinawan, a rural barangay along the coast of Laguna Lake in the municipality of Binangonan, Rizal, around 40 kilometers southeast of Manila. With the assistance of TEIN*CC around 26 km of fiber-optic cable was procured and installed between Barangay Kalinawan and the CONNECT-IX Internet exchange point hosted by Telmarc at its premises. In August 2021, the link between CONNECT-IX and

Barangay Kalinawan finally went live.

From initial nodes at barangay halls, residents expanded the network backbone to schools, health centers, and other public spaces where residents typically congregate. Wireless access points were installed in these and other key locations to cover most of the community. Installation was done by members of the community in true bayanihan (volunteer) fashion, with the CONNECT team providing training, assistance with design and configuration, specialist tools and skills, and operational support and monitoring. Voluntary and collaborative installation of inter-barangay links by residents also expanded the network to neighboring barangays.

Today, these community networks we call bayanihanets – reflecting their grassroots-based, bottom-up voluntary nature embodying the Filipino bayanihan tradition – span across the four barangays of Ithan, Kalinawan, Pipindan and Ticulio. Close to 8 kilometers of fiber-optic cable and 40 wireless access points providing public Internet access have already been installed. Over the course of any given day, we typically log more than 3,300 unique device MAC addresses on the network, which may be taken as a rough estimate for the number of unique users throughout the day.

After only one year from its initial activation in Barangay Kalinawan, in the midst of the ongoing pandemic, we estimate that close to 9,000 users have already benefited from these bayanihanets. Our experience suggests that underserved communities and their representative local government units, when properly and genuinely engaged as partners and stakeholders, can help themselves bridge the digital divide.
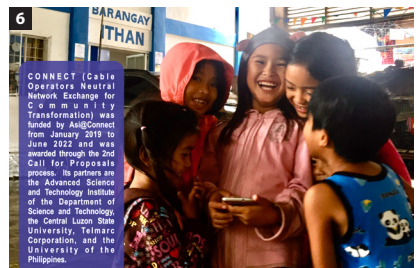
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Figure 1 Fiber optic splice box installation
Figure 2 Access point being installed on roof
Figure 3 Access point on a tree
Figure 4 Fiber route and access point locations
Figure 5 Training on fiber optic cable installation
Figure 6 Happy end-users!!

Photo above courtesy of Karisse Villanueva of CONNECT, and is used with parental permission.

Case Study of **Asi@Connect**