

The Inveneo Communications System

Complete, low-power ICT solutions for rural and remote installations

Today, more than two billion people in the developing world live in rural and remote locations with little or no access to basic information and communications technologies (ICT), such as telephones, computers, or the Internet. Yet access to these technologies can improve their lives in simple, yet profound ways – providing better economic opportunities, helping enforce human rights, educating children, and even saving lives.

Inveneo is a non-profit social enterprise whose mission is to get ICT tools into the hands of the organizations and people who need them most – those in remote and rural communities in the developing world.

To do this, we create and sell affordable and highly sustainable ICT systems designed specifically for the many challenges these organizations face in locations where electrical power is:

- not available or not dependable
- power is very expensive
- heat, dust, moisture, and humidity are common
- little access to affordable communications
- lack of trained technicians for local support

The Inveneo Communications System is designed to connect schools, clinics, Internet cafes, and offices in such rural and remote locations. It provides affordable computing, telephony, local-area networking, and access to Internet services*.

The key components of the Inveneo Communications System include:

- Inveneo Computing Station
(Ultra-low power desktop computer with LCD monitor, 12V adapter)
- Inveneo Communications Station
(Ultra-low power desktop computer with LCD monitor, 12V adapter, VoIP telephone)
- Inveneo Hub Station
(Ultra-low power server with central data storage, access gateway, fire-

wall, webserver, PBX functionality)

- Long-distance wireless connectivity
(WiFi networking via directional antenna and outdoor wireless router)
- VoIP telephony
(Software-based IP PBX system with standard telephone handsets)
- Operating system and software
(Open Source software, Windows also supported)

This combination of products offers a complete information and communications technology solution for groups and organizations such as NGOs (Non-Governmental Organizations), local governments, and private enterprises that provide vital services to rural and remote communities.

But the hardware and software are only part of the solution. Through Inveneo's Certified ICT Partner Program, Inveneo is creating a local ecosystem of IT professionals to install and support rural ICT solutions in-country, faster and more cost-effectively.

*Inveneo can connect to any Internet service, but does not provide Internet service

Typical Installation for a Rural School or Community Center

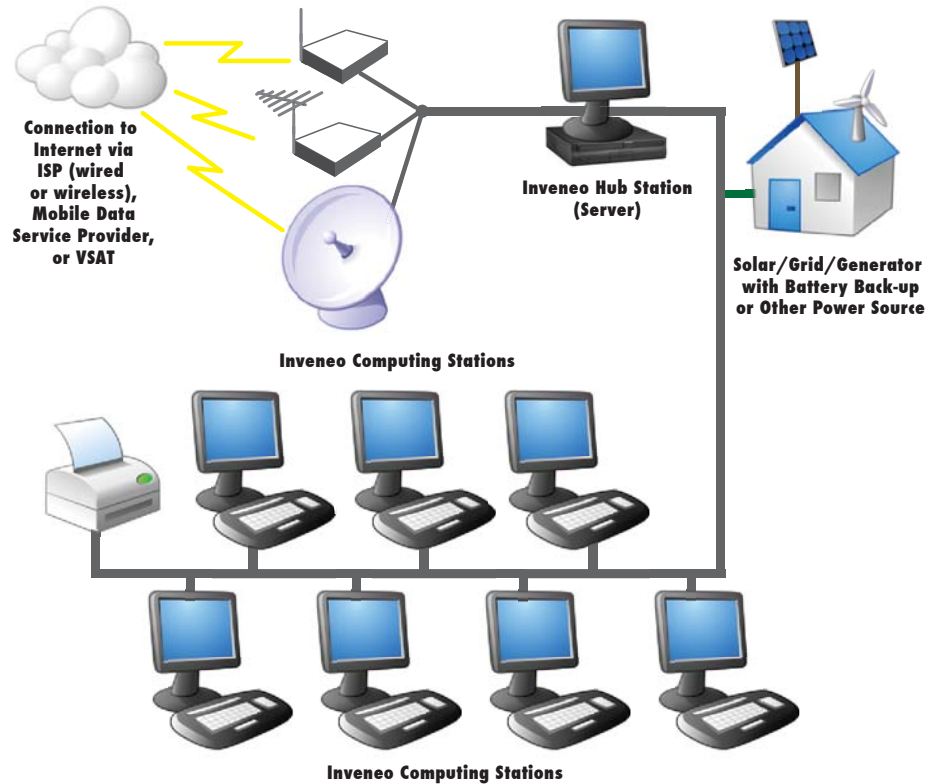


Figure 1

How it all works together

You can use the Inveneo Communication System for a 10-unit school computer center or a complete regional network connecting offices and local-area networks as much as 100 kilometers apart. In both situations, the Inveneo solution can provide the affordable access to information and communication that organizations and communities need in rural and remote parts of the world.

Single Location Installations

In single-location installations, such as for schools or community centers (see figure 1), Inveneo offers highly-sustainable, low-power computers and servers in the form of Inveneo Computing Stations and Hub Stations that allow centers to run off of local power sources, such as solar power, partial grid, or generators with battery backup.

Regional Network Installations

For regional networks (see figure 2), the solution may connect several school or community center installations, clinics, or offices. In this case, a central Inveneo Hub Station at the regional office acts as a central server for all the locations, with Inveneo Relay Stations extending the reach of the network up to 100 kilometers. Again, at each location, Inveneo (or an Inveneo Certified ICT Partner) would install Inveneo Communications, Computing, and Hub Stations, as well as Inveneo Outdoor WiFi Access Points.

The key components

The Inveneo Computing Station

Since most networks will need more computers than communications systems, Inveneo created the Inveneo Computing Station. This ultra low-power, affordable, and easy-to-use desktop computer is designed for use in rural locations such as clinics, schools, field offices, community centers and Internet cafes.



The Computing Station includes the following components:

- Ultra-low-power computer with keyboard and mouse
- LCD monitor with mounting bracket for computing unit
- 12-Volt DC operation or 100-240 VAC (AC adapter included)
- 2GB Flash memory or 40GB hard drive option
- Inveneo Desktop 2.0 Open source software; Open Office, instant messaging, and other applications (Xubuntu Linux or Windows XP optional)

The Inveneo Communications Station

The primary component of any Inveneo Communications System is the Inveneo Communi-



communications Station. This system was designed for use by organizations in rural locations such as field offices or clinics. It provides end-users with computing, telephony, and networking capabilities when deployed as a part of the Inveneo Communications System.

The Communications Station includes the following components:

- Ultra-low-power computer with keyboard and mouse
- VoIP Analog Telephone Adapter (ATA) with analog telephone
- LCD monitor with mounted case for computer and ATA
- 12-Volt DC operation or 100-240 VAC (AC adapter included)
- 2GB Flash memory or 40GB hard drive option

- Inveneo Desktop 2.0 Open source software; Open Office, instant messaging, and other applications (Xubuntu Linux or Windows XP optional)

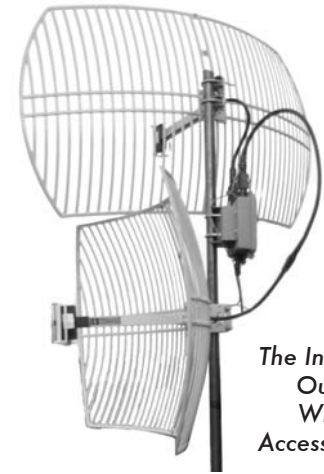
The Inveneo Hub Station

The Inveneo Communications System uses the Inveneo Hub Station as a low-power, highly configurable server. The Hub Station also provides the system management, storage, and network connectivity needed to run low-power computing and telephony networks in rural areas.

The Hub Station can be configured with a variety of hardware options to interconnect to the public switched telephony network (PSTN), a GSM/CDMA wireless network, satellite, or standard wireless or wired broadband networks.

The Inveneo Hub Station is a Linux-based server that provides:

- File storage for documents and shared content
- Intranet Web Server
- Firewall
- Internet content caching
- Gateway connectivity to data networks
- IP-PBX functionality; telephone switching that includes dial-tone, the ability to conference, transfer, voicemail, dial-by-extension, and connect to public switched telephony networks (optional)



The Inveneo Outdoor Wireless Access Point

Typical Installation for a Regional Network

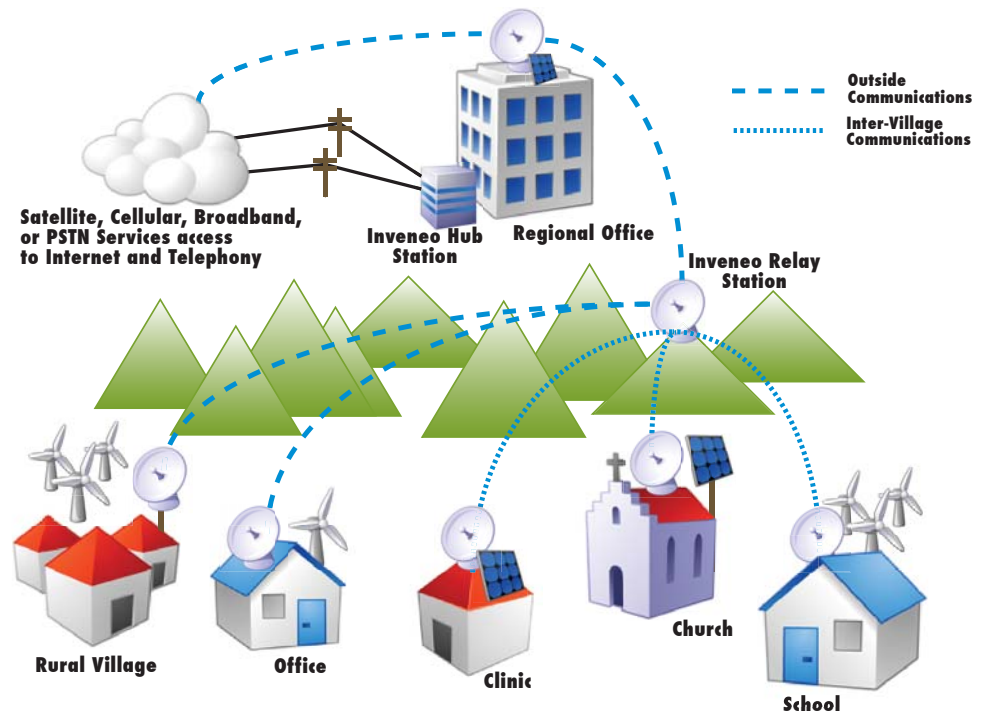


Figure 2

Inveneo Communications Stations and Computing Stations in Offices, Clinics, Churches, Schools, and Villages



Archbishop John Baptist Odama makes the first telephone call on an Inveneo Communications Station from Gulu, Uganda

Working with a local Inveneo Certified Partner

The first step in setting up an Inveneo Communications System is to map out the network with an Inveneo Certified ICT Partner (ICIP). These partners are trained and certified ICT professionals and small-business entrepreneurs. They provide installation and support for the organizations Inveneo serves, improving the affordability and level of support dramatically. Visit www.inveneo.org to learn more about ICIPs in your area.

About Inveneo

Inveneo is a non-profit social enterprise whose mission is to get the tools of information and communications technology (ICT) into the hands of organizations and people who need them most – those in remote and rural communities in the developing world.

For more than two billion people living in these communities, gaining access to ICTs—either directly or via service organizations—can transform lives in simple, yet profound ways. Access to ICT can help save lives

(through rural healthcare), provide better economic opportunities (for farmers and entrepreneurs) and provide a better future for children (through better education).

Currently Inveneo has projects completed or underway in Uganda, Rwanda, Ghana, Guinea Bissau, Mali, South Africa, Cameroon, Gabon, and Burkina Faso. These projects serve schools, economic development groups, telecenters, micro-finance programs, and relief camps.



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