



## CUWiN: Wirelessly the Revolution.

CUWiN has been developing free, open-source wireless mesh software since the turn of the millennium. Today, CUWiN is on the brink of revolutionizing broadband service provision and telecommunications infrastructure worldwide by creating extremely low-cost, easy-to-install broadband technologies that can cover everything from a single apartment building to an entire metropolitan area.

### What Does CUWiN Do?

- **R&D:** free open source software for mesh wireless networking.
- **Consulting:** expertise in developing and maintaining wireless networks for businesses, communities, municipalities, and non-governmental organizations.
- **Education:** educational programs and resources about community wireless technology and telecommunications policy.

### CUWiN: A History of Success

- On November 18, 2002, CUWiN's software allowed its first multi-hop, bandwidth-sharing wireless cloud to become operational—creating, for the first time, access to a single Internet connection from multiple locations over a half-kilometer area. Within two years, this technology became widely known as “mesh wireless.”
- In 2003, CUWiN received an exploratory grant from the Threshold Foundation to buy equipment as a proof-of-concept for deployment in impoverished communities. The initial exploratory grant enabled CUWiN to double the number of nodes in the network, allowing CUWiN to test new software improvements under real-world conditions.
- In 2004 and 2005, CUWiN received major funding from the Information Program of the Open Society Institute to further develop its software as a model for transfer to other communities. CUWiN established a formal partnership with the Council for Scientific and Industrial Research in South Africa to implement wireless networks in former townships.

### CUWiN: In Action

CUWiN software is being used to bring low-cost Internet access to low-income communities around the world. Here are just three examples:

- **Mamelodi, South Africa:** CUWiN is helping to bring telecommunications infrastructure to a former township just outside of Pretoria. Due to Apartheid, Mamelodi has very little infrastructure. Using CUWiN's technology, Mamelodi's residents were able to “leapfrog” over an entire generation of expensive, wire-line infrastructure in a matter of months.
- **Mesa Grande Reservation, Southern California:** The Mesa Grande Reservation in Southern California does not have cell phone, cable, or even postal service because it is considered “too remote.” CUWiN's technology is being implemented with the help of Tribal Digital Village to bring broadband Internet services and computers to every home on the Reservation.
- **Urbana, Illinois:** Over the past half-decade, the Urbana Project has integrated work from CUWiN's developers, the City of Urbana, and local community members with research from University of Illinois computer science laboratories to build and maintain the largest in-vivo wireless testbed in the United States.

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## CUWiN: Version 1.0 Delivers!

CUWiN 1.0 will deliver a wireless mesh networking product that is robust, easy to implement, and highly scalable. Version 1.0 will include the following features and functionality:

- **Nodeconfig:** a graphical user interface that allows users to configure nodes without using the command-line. The nodeconfig mockup is available online at: [www.cuwireless.net/nodeconfig](http://www.cuwireless.net/nodeconfig)
- **Monitoring and Maintenance Suite:** an integrated toolkit to enable network managers and Internet Service Providers to effectively and efficiently maintain their wireless network.
- **Dual-radio Support:** allows nodes to provide backhaul service as well as access points for end-users. Will help create an end-user experience of ubiquitous wireless Internet access.
- **Captive Portal:** node-owners may establish a captive portal for authentication and to advertise their own services. Allows display of geolocationally-based advertising and information.
- **Community DNS and Service Discovery:** nodes will determine optimal network routes and the community network will operate its own internal Domain Name Services.
- **Network Services:** VoIP, peer-to-peer, and Intranet services can all be utilized on the network.
- **Automated Gateway Discovery:** nodes will automatically determine optimal gateway routes on the fly as gateways and nodes become congested. Allows multiple Internet connections to be more efficiently utilized by the network.

## CUWiN: Will Revolutionize Telecommunications.

CUWiN is poised to revolutionize the telecommunications industry around the globe by:

- **Creating Disruptive Technologies:** CUWiN's low-cost and dynamic technologies provide a superior networking alternative to the "one-connection-per-house" model that dominates the industry. Local ISPs and organizations who utilize CUWiN's technology will have a competitive advantage over "telecom dinosaurs" using antiquated business models.
- **Building Scalable Networks:** CUWiN's software uses the HSLs protocol, developed for military battlefield use and made Open Source by CUWiN, is incredibly scalable and adaptable – far more so than most other wireless technologies.
- **Fostering Community Networking:** CUWiN creates networks that mirror the way most users utilize broadband services—its peer-to-peer. Most proprietary technologies create unnecessary congestion by relying upon overly centralized and hierarchical infrastructures. CUWiN's technologies create decentralized and non-hierarchical networks that are both faster and cheaper to run. The driving force behind many technologies is to maximize "billable moments"; CUWiN's goal is to create low-cost broadband service options that empower communities.
- **Encouraging Democratic Media Production:** Contemporary publishing models often rely on heavily capitalized corporations to back the production of information available for public consumption. Community networks, utilizing CUWiN's technologies, can level the playing field, enabling low-capital production and dissemination of media and information.
- **Tapping into the DIY Ethic:** CUWiN's technologies are turn-key and "white box." You do not need to pay "experts" to set up CUWiN networks—CUWiN's extensive documentation allows communities and neighborhoods to build their own networks and provide their own services. CUWiN aims to help close the digital divide by eliminating barriers to entry and providing a powerful tool for any municipality, organization, or individual to "Do-It-Yourself" and provide telecommunications services.