

Tegola & HUBS: Rural Community Broadband

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Rural Broadband

The need for fast broadband is *higher* in rural communities than urban ones, but they are the last to be connected.

Businesses: proportion of small businesses *higher* than in urban areas.

Online shopping: even for food.

Other communications often don't work: telephone, radio, TV, mobiles

Alternative to libraries, cinemas, etc.

Education: children on Eigg can lose 3 weeks school a year due to bad weather.

"Distance" communications: vital social importance, especially for the oldies!

Telemedicine & telehealth.



Willie Sandaig “teleconferences” with his grandchildren in New Zealand



Finlay, in Arnisdale, keeps in touch with his pal Sam in Worcester

Tegola a network research testbed in the most remote part of the Scottish mainland.

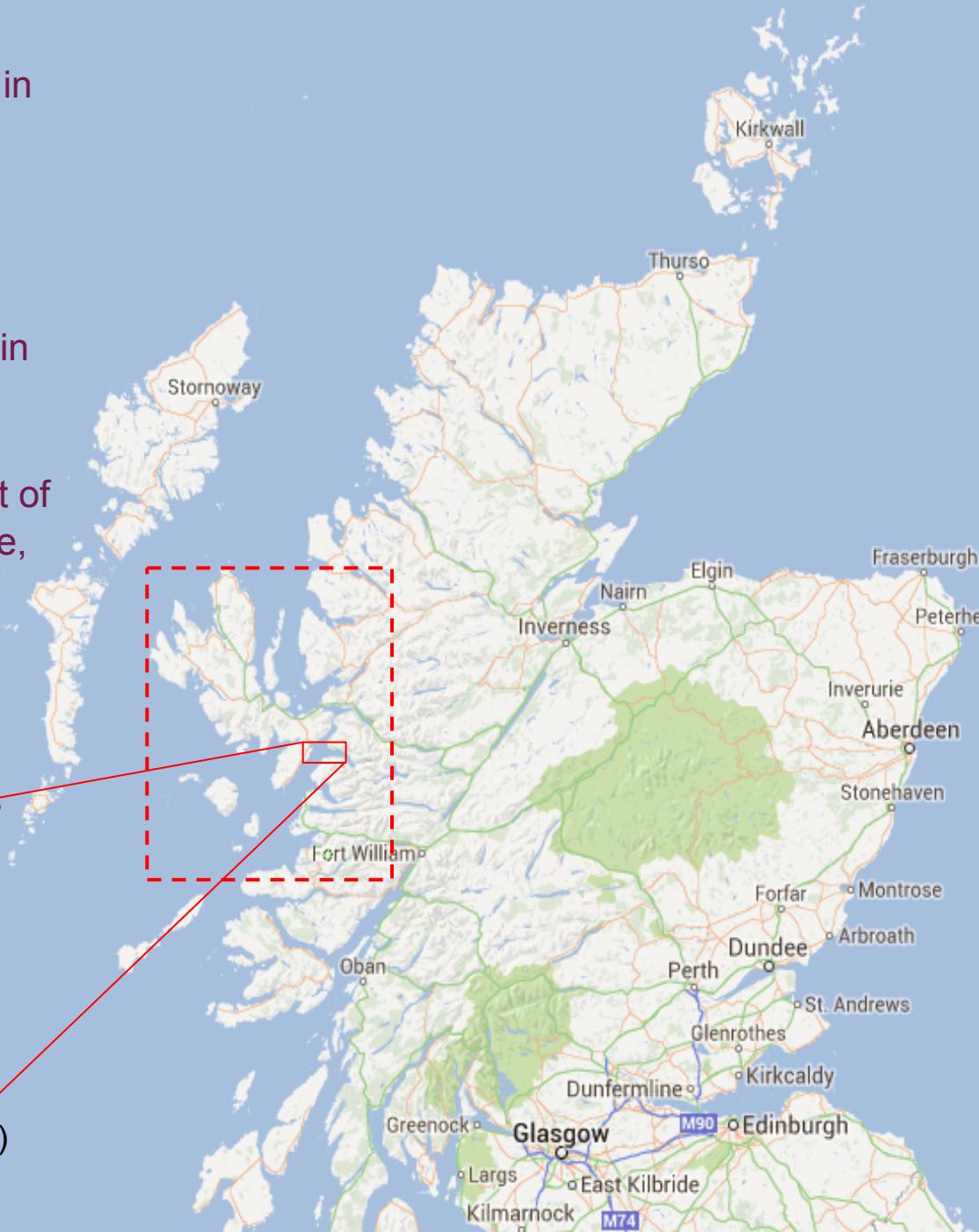
Started in 2007, by the University of Edinburgh, Tegola demonstrated the importance of community participation in building distribution networks

HUBS an organisation that grew out of Tegola, is dedicated to providing advice, support and shared infrastructure for community broadband.

HUBS is a joint venture between University of Edinburgh, University of Stirling and the University of Highlands and Islands.



The original Tegola Network (2008)



Tegola successes

- All but 3 families (octogenarians) in a community of 50+ have taken up broadband, including several in their 70's.
- New businesses have moved into the community thanks to high-speed internet
- Frequently in the news. Won the 2011 NextGen Broadband award
- Has spawned other projects and small businesses that deliver broadband
- Has been (by design) reliable
- Delivered basic practical research into network planning, relay construction, power, network management, etc.
- At least 1000 people in rural communities now have internet thanks to Tegola

*In October 2011, lightning strikes knocked out the telephone lines to a wide area
Emergency health services were diverted through Tegola.*

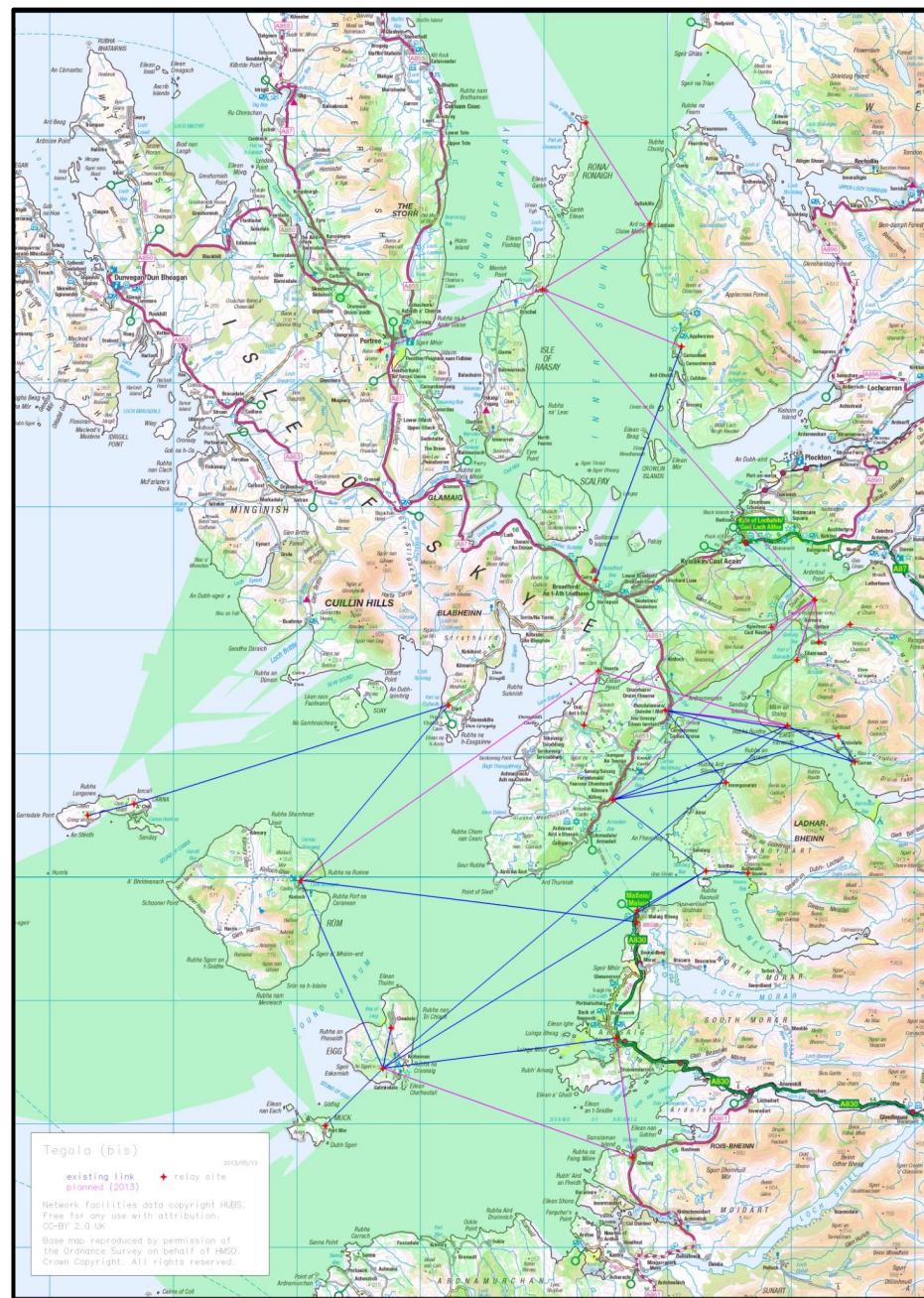
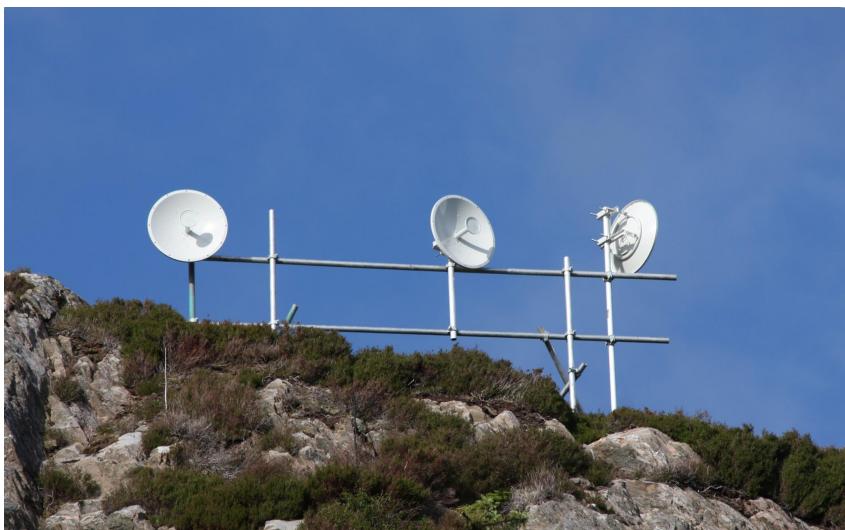
The extended Tegola network (by autumn 2013)

A confederation of seven interconnected community networks created by HUBS

Sharing infrastructure & services for economies of scale and reliability.

Delivering speeds above 30Mb/s .

One of the largest remote community networks in Europe.



Reaching the last 15-30%

500k premises in Scotland > 1m people

Rural communities can build and maintain distribution networks at a fraction of the cost to centralised providers provided they have access to backhaul

- Vastly lower civil & transportation costs
- Infrastructure (relays, fibre) is locally owned. Fewer issues with licensing, wayleaves, rents, taxes etc.
- Communities can adapt more quickly to changes in technology and connectivity
- People in remote communities are resourceful (they must be to live there)

The burning question How can individual projects be aggregated in order to reach scale?

We must scale 500 x to reach the final fifth of Scotland's homes and businesses !

A new model:

Local action at national scale ...



Local transport



Stress testing



Construction

HUBS

Provides

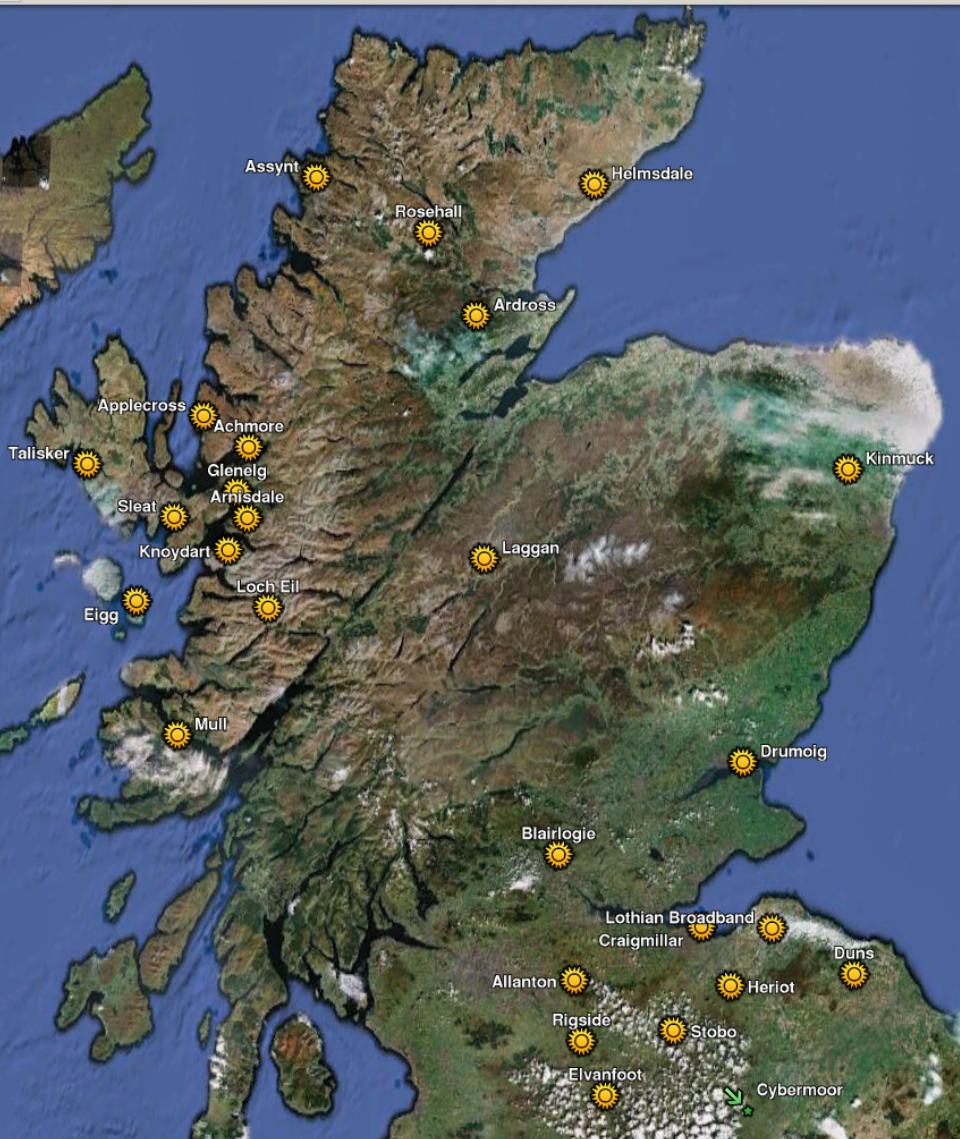
- Tegola know-how
- Network planning and on-site help
- Equipment loans to get projects off the ground
- Educational materials

Aggregates backhaul bandwidth and other network services

Interconnects community networks

Develops tools for OMA – operations, administration and maintenance – to enable a new economic model for community broadband at national scale

With HUBS assistance, several interconnected community networks have been built *without state funding*



Since mid 2012, HUBS has assisted about 30 communities, 10 of which are now operational



What is needed

- An open access fibre backbone
- A light-touch and agile approach to community funding
- Open source, open access community tools
- Funding (Nominet application pending ...)

www.tegola.org.uk