

**Rural Broadband Solutions**  
by  
**Richard Dix**  
of  
**RuralBroadband.co.uk**



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

**Non Fixed Line Solutions**



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

**The WiBE 3G Solution**

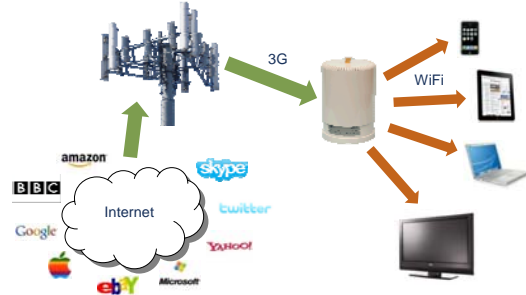
No broadband?  
Slow broadband?



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

**The WiBE connects users to the Internet ...**

... using the 3G network



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

## The WiBE - designed for fixed broadband



- All these devices are designed for mobile use
- Low performance antennas
  - Small
  - Omni-directional
  - Low gain
- Leads to
  - Limited range from 3G base station
  - Limited data throughput

- For fixed broadband this is not necessary
  - Because mobility is not required
- The WiBE is optimized for performance



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

## The WiBE - Optimized for performance

### Wireless Broadband Extender – WiBE®

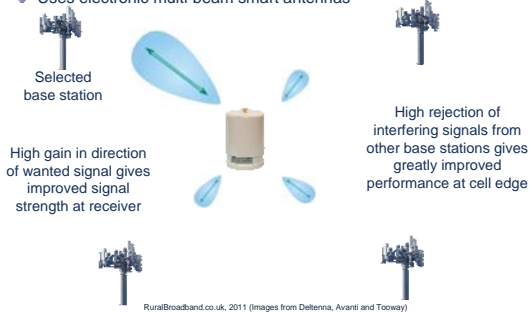
- 3G-WiFi router with optimized 3G antennas
  - High gain
  - Directional
- Small form-factor
  - Place near a window
  - Plug in
  - Start using



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

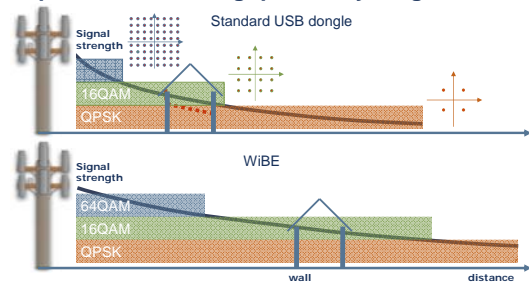
## How does the WiBE work?

- The same principle as pointing a TV aerial
- Uses electronic multi-beam smart antennas



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

## Improved data throughput at any range



The signal strength at the WiBE receiver is over 20 dB better than in a typical dongle allowing the base station to use higher order modulations and less channel coding bits

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### What's inside a WiBE?

- A 3G modem
- An IEEE802.11bgn router
- But mainly antennas



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### How much better does the WiBE perform?

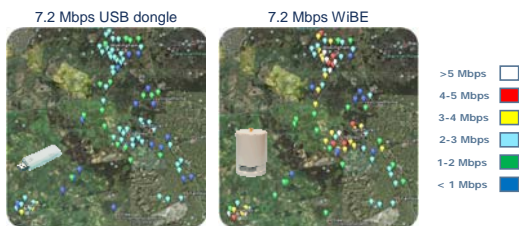


- This means the WiBE has
  - 3x range of best in class 3G router
  - 10x range of dongle

RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

### WiBE gives better throughput at any distance

- UK field survey results
- 100 locations where both dongle and WiBE can connect



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

### WiBE-HS7 router - main features

- Self-configuring
  - SIM detection
  - APN recognition
- Web-based user interface
  - No software to install on PC
- Fully featured for advanced users
- Router
  - DHCP
  - VPN passthrough, Static routing
- WiFi IEEE802.11bgn
  - Extended range
  - Security: WEP, WPA, WPA2 options
- Firewall
  - MAC/IP port filtering
  - Port forwarding, Virtual Server
  - DMZ
  - Content filtering



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

## Who Needs a WiBE®?

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## Geoff Does

- Geoff lives in a remote corner of Wales
  - Clynnog Fawr – 15Km from Caernafon
- Difficult coverage area
  - Mobiles only work hanging out the window
  - Dongle was getting 32Kbps
- WiBE® achieved 792Kbps
- The BBC iPlayer® worked with the WiBE®



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

## Broadcasters do

- In Cumbria area ISDN is declining and 3G is patchy at best.
- For Radio the options are then a VSAT van (expensive) or a dongle
- Here in Whinlatter the broadcaster achieved 136Kbps – enough for a broadcast quality live insert
- WiBE® for significant cost savings



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

## Construction companies/ Builders

- Building sites don't usually have ADSL
- It is something BT will fit when there are customers there
- So to get started a WiBE® offers instant internet at most locations



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

## Surveyors

- Working at various locations
- Can't always guarantee an ADSL connection
- Can't guarantee a WiFi hotspot
- Can't always get a dongle to connect
- Much higher probability a WiBE® will connect as it has 10 times the range of a Dongle



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avani6 and Tooway)

## New Office/ Temporary office

- New Office – you need to contact BT and order ADSL – can take a while and can be expensive
- WiBE® is an instant start up, plug and play



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avani6 and Tooway)

## What about Voice?

- Skype works well
  - (Other Sip clients are available)
- WiBE® is an instant start up, plug and play
- Can have fixed IP SIMS and Specific QoS for VoIP.



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avani6 and Tooway)

## Apartment/ New House

- New House – you need to contact BT and order ADSL – can take a while and can be expensive
- WiBE® is an instant start up, plug and play



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## Remote Monitoring

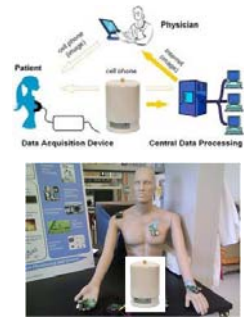
- Locate IP WiFi web cam at surveillance point
- WiBE® is an instant start up, plug and play
- Web Cam sends via the WiBE
- Just add Power



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

## Remote Patient Monitoring

- WiBE® can be used for back hauling the data if patient does not already have ADSL



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

## Business Continuity

- What do you do if the ADSL goes down?
- Its rare, but not unusual,
- BT went down across the whole of the North of England in 2010 one Friday evening
- WiBE® is an instant start up, plug and play



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

## Business To Business

- Business Continuity – Emergency back up connection.
  - Saves you when the Internet fails
- Initial connection in New Offices
  - Temporary set up to get going when moving, can be used to guarantee service on day 1, Hour 1 of an office move, then becomes the Emergency backup connection when BT finally install the main line.
- Remote Workers
  - All those employees stuck at home in the snow
- Poor to no connections with a Dongle
  - Full service with a WiBE®



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

## Business To Retailers

- Business Continuity – Emergency back up connection.
  - Saves you when the Internet fails
  - Keeps your credit card machine working
- Poor to no connections with a Dongle
  - Full service with a WiBE®



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

## Retailer to Consumer

- Poor to no connections with a Dongle
  - Full service with a WiBE®
- Longer range than a Dongle or MiFi
- Ideal for Rented accommodation
  - No wires, no cables, easy set up
  - Plug and Play
- Ideal for remote locations



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

## WiBE® benefits summary

### For the user

- Internet connection
  - Where there is no DSL
  - Out of range of other cellular devices
  - Temporary locations
  - Mobile users
- Improved data throughput
  - Offers higher throughput than a dongle
  - Finds an uncongested cell for better throughput,



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)


## WiBE® benefits summary

### For the business

- Internet connection
  - When the ADSL dies.
  - Emergency backup
- Temporary locations
- Mobile employees
- Employees stuck at home in the snow
- Improved data throughput
  - Offers higher throughput than a dongle
  - Finds an uncongested cell for better throughput,





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### Satellite Broadband

- Satellite broadband is a proven technology, delivering high-speed services to customers beyond the reach of terrestrial networks
- Over 1 million premises are equipped with satellite broadband in the USA
- Ka-band provides higher power, therefore higher speeds, lower costs
- End-users are typically equipped with a 74cm antenna, with customer connection from a standard ethernet cable

RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

- A range of service speeds now available up to 8Mbps download and 2.5Mbps upload
- Standard antenna sizes 74cm
- End user prices are :
  - 2Mbps / 512kbps £23 per month
  - 4Mbps / 1Mbps £26 per month
  - 8Mbps / 2Mbps £49.50 per month
- Equipment and installation available for under £500

RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

### Availability

- Services are available to order right now!
- Equipment and installation fee always barrier to take up for alternate technologies
- However, equipment costs are falling – equipment in 2007 was over £1300 per unit, in 2011 its less than £500

**Choice of providers including Avanti and Tooway now using Ka-band**


RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

### Options

Satellite can provide Triple Play

Broadband  
TV  
Telephone

VOIP with local code  
Freesat or Sky using a side arm  
Broadband up to 10 Meg



RuralBroadband.co.uk, 2011 (Images from Deltenna, Avanti and Tooway)

**The biggest benefit ...**

- Satellite and 3G services are available now.
- High speed with faster coming
  
- No cables
- No digging
- No waiting

**Thank you for  
your time**



**ADSL • SATELLITE • WIRELESS  
FIBRE • ANYWHERE**

Kurabroadband.com.au, 2011 (images from DSLForum, Avnet and FCC.gov)