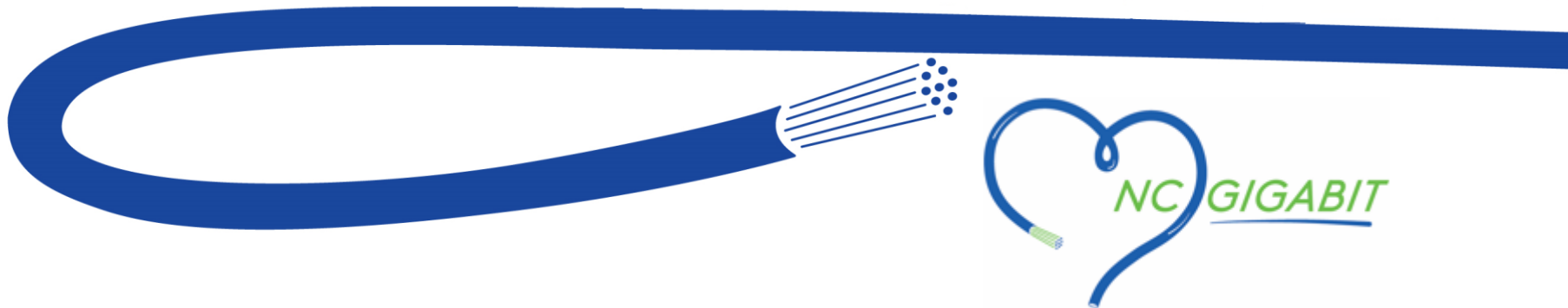


NC Broadband Matters

What to Do With Broadband Now That You Have It?

April 13, 2023



About: **open**broadband



- NC owned and operated ISP (Waxhaw)
- Broadband in underserved areas in NC, SC, VA, FL
- Public Wi-Fi Zones and Analytics
- Workforce development
- Support and expand entrepreneurship
- Keep incumbent carriers honest. Where competition exists, consumers win.

Alan Fitzpatrick

<https://openbb.net>

[t](https://openbb.net)

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Broadband Use Case: Farms



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Broadband Use Case: Farms

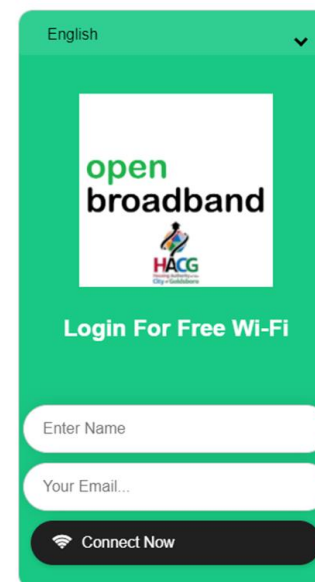


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Broadband Use Case: Farm Workers



Broadband Use Case:



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Broadband Use Case: Public Areas

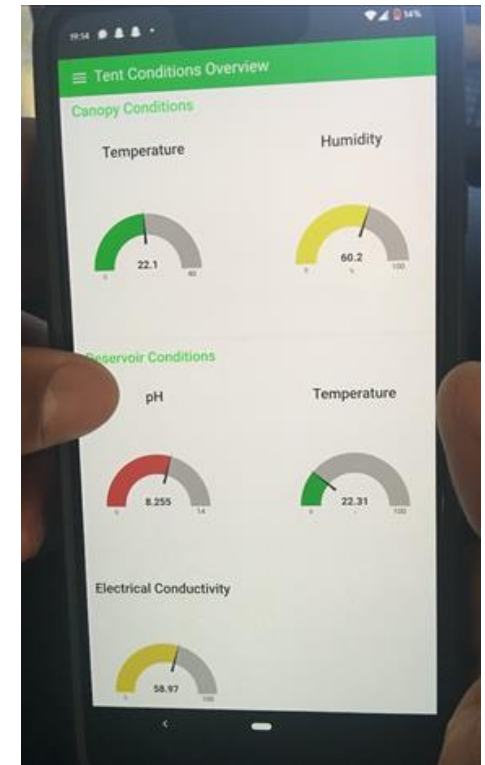
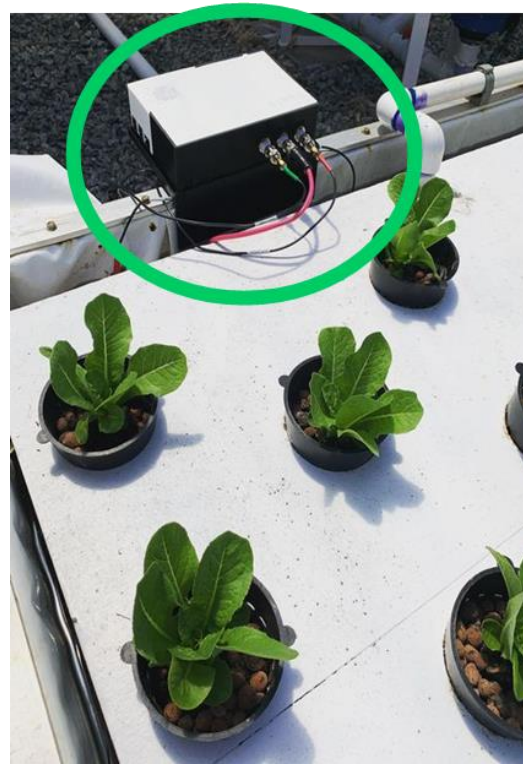


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Broadband Use Case: Entrepreneurs



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Broadband Use Case: Innovation



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Broadband Use Case: Healthcare



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Broadband Use Case: Community Centers



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Broadband



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open
broadband

What to Do With Broadband Now That You Have It?

Mark Boxer

OFS

mboxer@ofsoptics.com

Topics shown in order of near-term viability

Eldercare

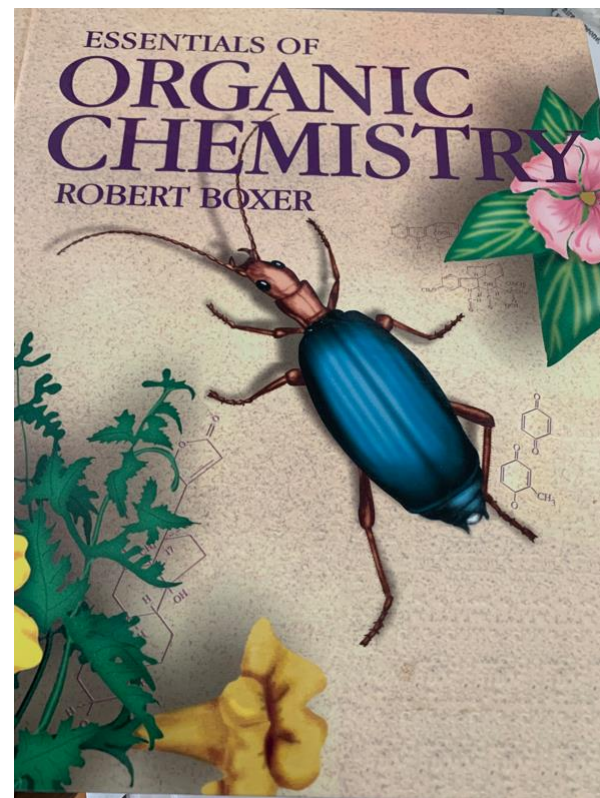
Sensing

Quantum



Eldercare

- My father
- 88 years old
- Organic chemistry professor
- Author
- Alzheimers patient
- Music lover
 - Especially classical and Broadway



How can I help?

- I live in North Carolina
- He lives in assisted living, Atlanta-area
- Amazon Echo Show
 - “Drop in” feature
 - **Requires upstream bandwidth!!**
 - Picture book
 - Curated video list
 - Programmed music



Rotating picture book

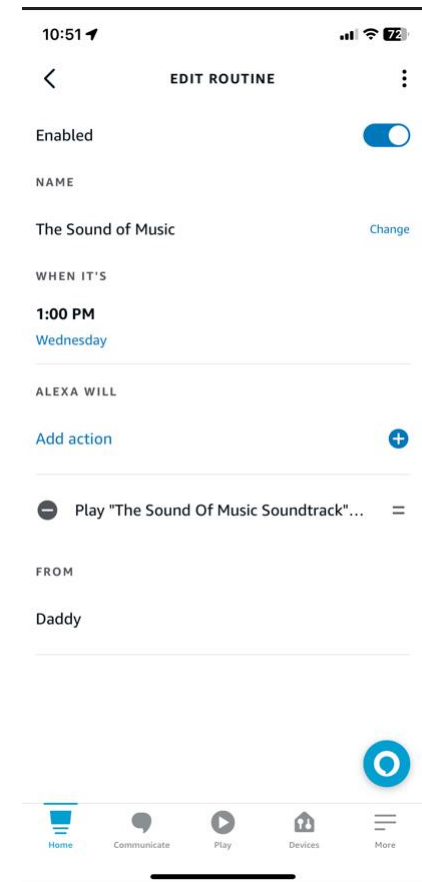
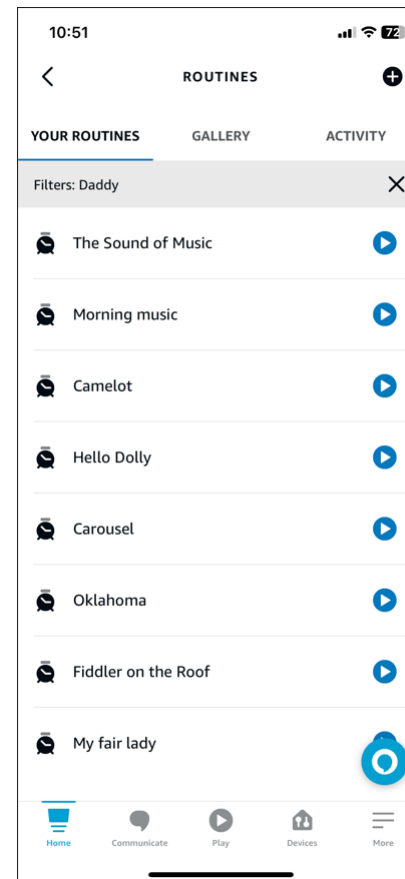
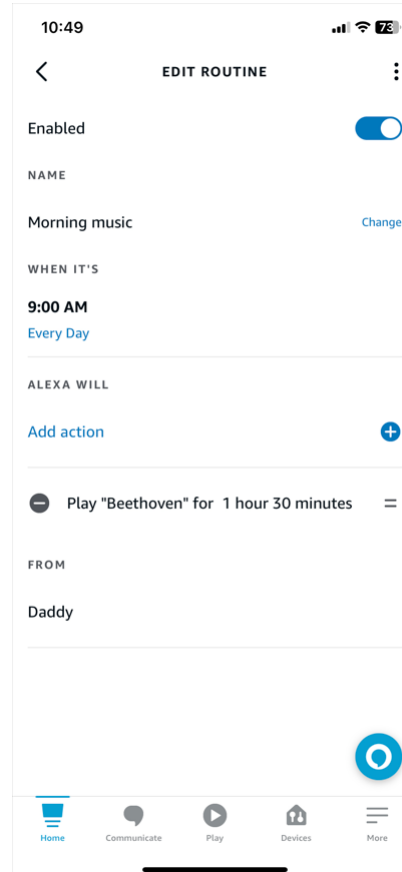
Curated video lists

- Loves James Bond, WWII, Sherlock Holmes
- Caregivers can pick out videos from list
 - Also limit exposure to triggering content



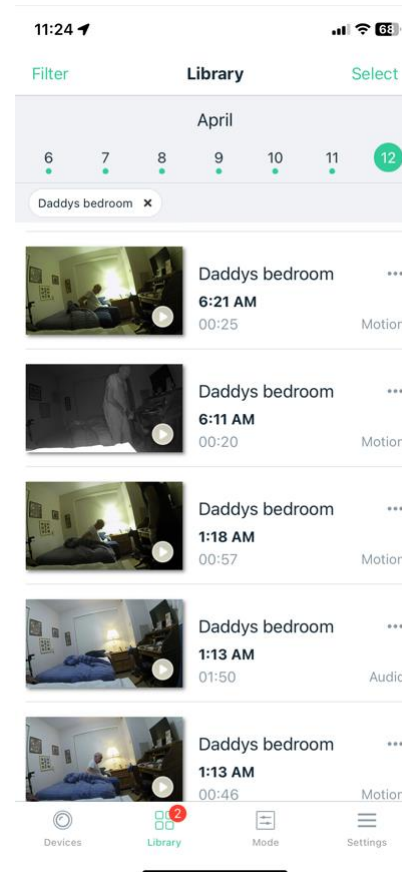
Programmed music

- Relatively easy to program “routines”
- Plays Beethoven from 9-10:30 each morning
- Plays a different musical each afternoon



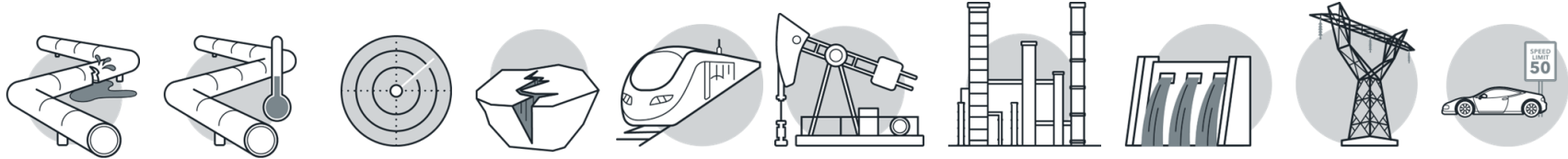
Sleep monitoring




- Sleep is a vital component for Alzheimer's patients
- Using Arlo cameras with motion/sound detection to monitor sleep



Sensing

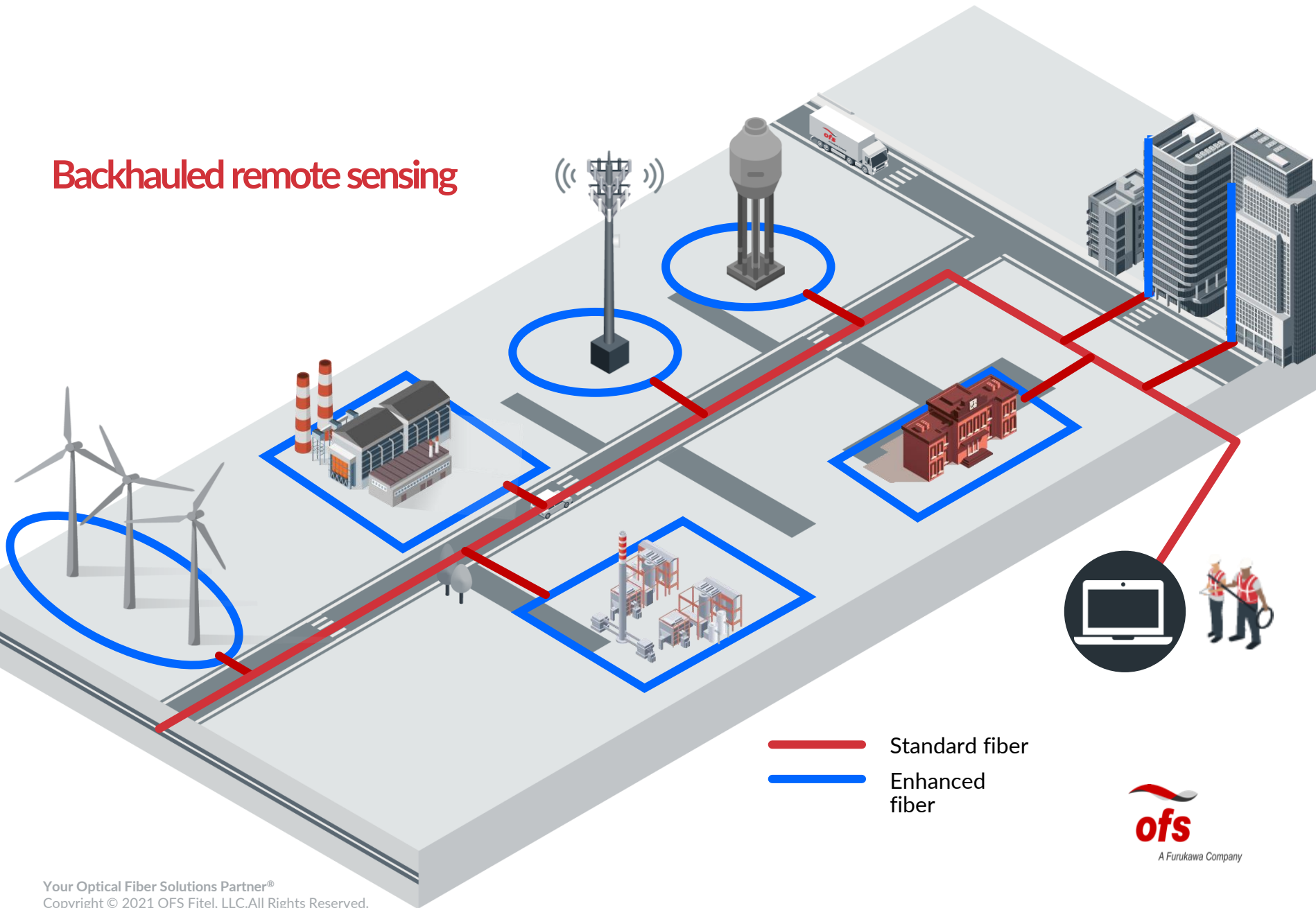
- Fiber has tremendous capability for sensing
- Multiple applications – expanding to traditional networks



	Pipeline Condition (midstream)	Pipeline Heat Trace Monitoring	Intrusion/Security	Geo-Technics	Transportation	Oil & Gas In-Well (upstream)	Industrial Processes	Structural Health	Power	Smart Cities/Highways
 DAS	Leak Intrusion/Security Pig Tracking Hot Tap/Valve Detection		Perimeter Security Activity Detection Tunneling Detection Monitoring of Cable Plant Physical Layer	Seismic Rock Fall Land Slide	Train Tracking Traffic Flow Track/Rolling Stock Condition Rock Fall	Seismic Fracking Flow Profiling	Conveyor Belt		Fault Finding TPI (Anchoring) Cable Conditions	Traffic monitoring, speed monitoring, vehicle identification, accident avoidance
 DTS	Leak Soil Erosion Trace Heating Power Monitoring	Pipeline Heat Tracing		Geothermal Dams (Leak) Environmental Research	Fire Detection	Temperature Fracking SAGD Flow	Safety (Temp) Plant-Maintenance Process-Optimization Conveyor Belt	Dam/Dyke (Leak)	Load Management Fault Finding Cable Conditions Transformer/Switching Gears	Locational road condition monitoring
 DSS	Landslide Pipeline Deformation Subsidence		Tunneling Detection	Landslide Dam/Dyke	Train Tracking Track Condition Landslide	Casing Strain Bore Holes Deformation Ground Deformation	Hoop Strain Pipe Deformation	Deformation Dam/Dyke Building/Bridges/Piles/Walls	Curvature/ Elongation (Cable Laying and Operation)	Bridge and highway degradation monitoring

PATENTED AND PATENTS PENDING

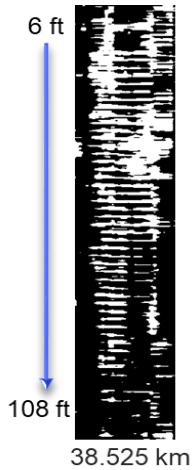
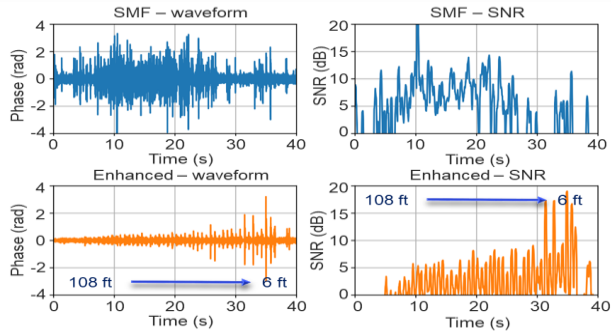
Backhauled remote sensing



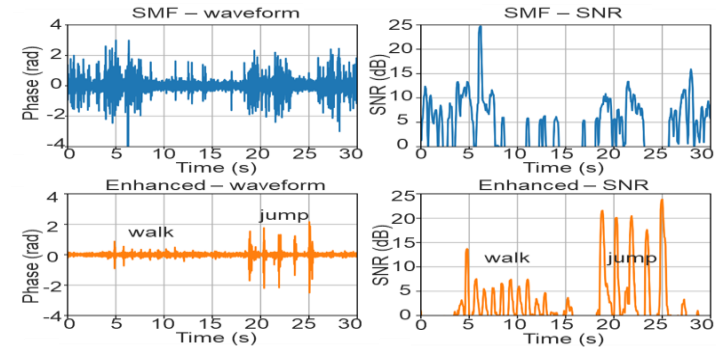
— Standard fiber
— Enhanced fiber



Field trial setup – 38 km network



- **walked 108 ft to 6 ft away**
- Enhanced fiber
 - SNR of 1.2 dB - 18.4 dB
 - Every step identified
- SMF - noise



- **At 30 ft away – walked/jumped**
- Enhanced fiber
 - SNR of 5 dB walking & 1.2 dB – 20 dB jumping
- SMF - noise

Quantum networks and applications

- Very early days
- Tremendous potential across a wide range of applications
- For more information, mboxer@ofsoptics.com

<https://quantum.epb.com/>

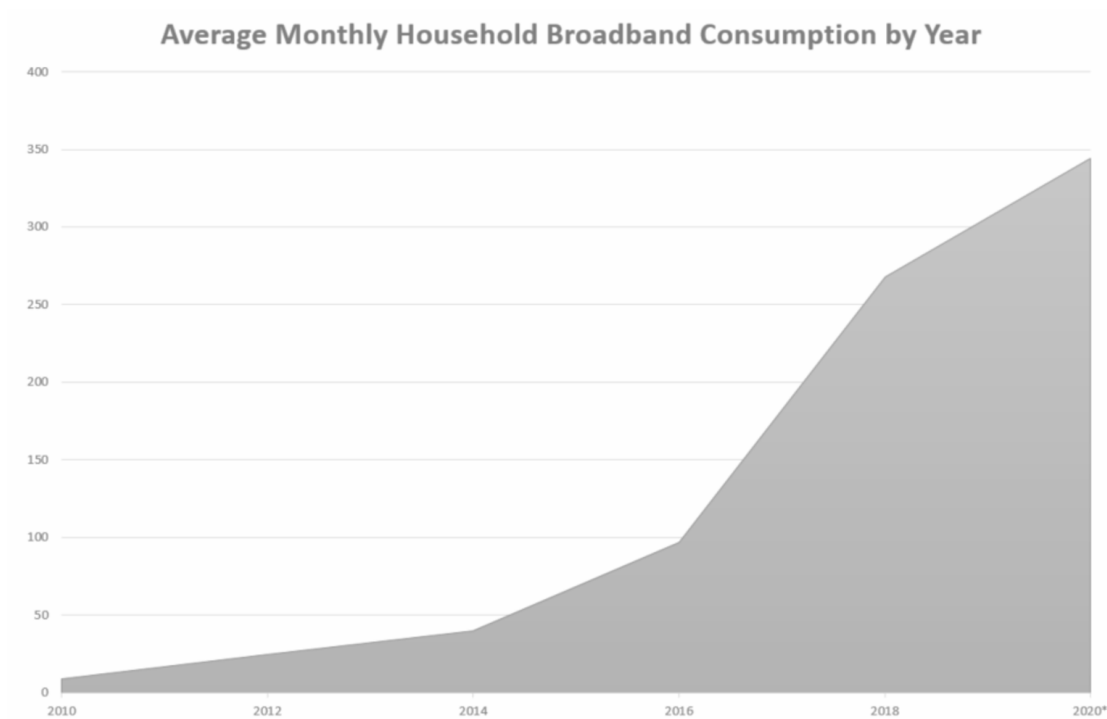




What To Do With Broadband Now That I Have It!

Greg Coltrain - VP Business Development
gregcoltrain@myriverstreet.net

OPEN THE FLOOD GATES



The above chart displays the annual increases in average household broadband data consumption over the past ten years. 2020 is estimated based on rolling monthly averages.

www.allconnect.com

OPEN THE FLOOD GATES

Year	Average Monthly Household Broadband Consumption
2010	9 GB
2012	25 GB
2014	40 GB
2016	97 GB
2018	268 GB
2020	344 GB
2022	513.8 GB
2023	587 GB

www.allconnect.com

INTERNET OF THINGS



INTERACTIVE HOME TECHNOLOGY



Echo (1st Gen.)



Echo Plus (1st Gen.)



Echo Plus (2nd Gen.)



Echo (2nd Gen.)



Echo (3rd Gen.)



Echo (4th Gen.)



Echo Studio



Echo Dot (1st Gen.)



Echo Dot (2nd Gen.)



Echo Dot (3rd Gen.)



Echo Dot (4th Gen.)



Echo Dot Kids (1st Gen.)



Echo Dot Kids (2nd Gen.)



Echo Input



Echo Flex



Echo Spot



Echo Show 5



Echo Show (1st Gen.)



Echo Show (2nd Gen.)



Echo Show 8



Echo Show 10



CONTROL FROM ONE PLACE



HOME TECHNOLOGY



YARD TECHNOLOGY



ENTERTAINMENT TECHNOLOGY

gemini

DIRECTV

NETFLIX

HBO max

YouTube

prime video

Paramount+

Peacock

Separate subscription/login required for 3rd party app content.

HOSTED PHONE TECHNOLOGY

- MODERN LOOK AND FEEL
- CORDLESS MODELS
- EXPANSION MODULES
- EAR PIECES
- SMS QUEUING AND LIVE CHAT
- SWITCHBOARD AUTOMATION
- CALL CENTER STATS
- AGENT REPORTING/DASHBOARDS
- VOICEMAIL TO EMAIL OR TEXT
- CALL RECORDING
- VISUAL DIRECTORY
- AUTO-ATTENDANTS
- SOFTPHONE (MOBILE/TABLET/PC)
- VIRTUAL WORK GROUPS
- DIRECT DIALED OR EXTENSION



THANK YOU!



Connected Homes

- ▶ Floodlight Cameras
- ▶ Door Bell Cameras
- ▶ Smart Thermostats
- ▶ Outdoor Access Points
- ▶ Bark

Connected Community

- ▶ Smart Meters
- ▶ Public Safety Cameras
- ▶ Rain Gauges
- ▶ Waste Bins

Connected Citizens

- ▶ The Future is Digital
- ▶ Navigation East
- ▶ Grow with Google
- ▶ RIoT Foundations
- ▶ Mainstreet IoT

Cutting Edge Uses of Broadband

- RFID Use Everywhere.
- Smart Appliances
- ChatGPT – Artificial Intelligence

RFID Everywhere

- Inventory Management
- Supply Chain Management
- Dry Cleaners
- Asset Tracking
- Forest Management

Smart Appliances

- Smart Plant Watering
- Smart Mirror
- Smart Trash Can
- Smart Faucets
- Wemo Smart Plug

ChatGPT – Artificial Intelligence

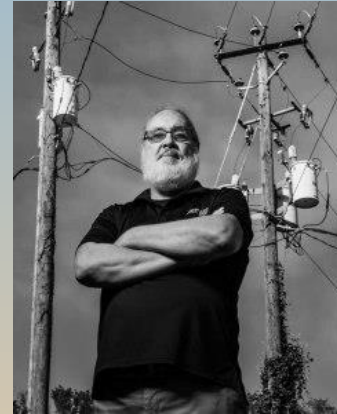
- Grading Papers
- Dressage
- Advance Searching
- Personal Recommendations
- Brainstorm Ideas

Contact Doug Dawson

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President, CCG Consulting

blackbean2@ccgcomm.com



Blog: <https://potsandpansbyccg.com/>