TECHN⏻RAMA

Plug, Play, and Broadcast

Using Tech

to Power Outside Broadcasts

with SD- Magic-WAN

The Problem with OBs

- Outside broadcasts are exciting — but fragile
- Internet is inconsistent
- Setup varies by location
- We need plug-and-go networking that just works

What We Actually Want

- ✅ Secure, private link back to the station
- ✅ Low-latency audio return
- ✅ Remote control of gear
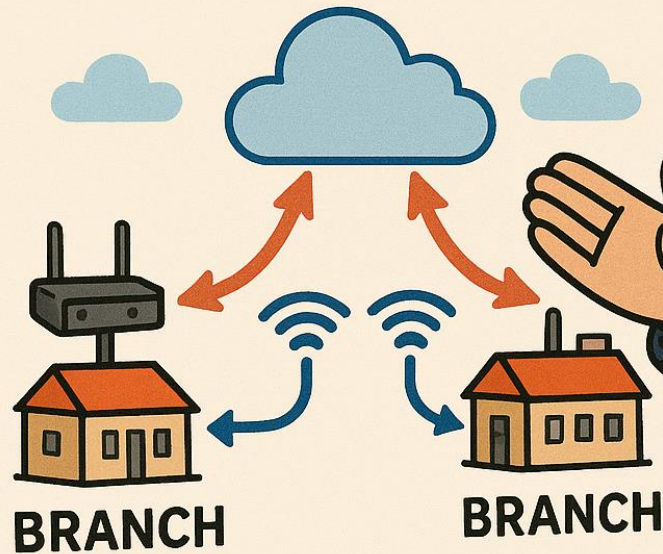- ✅ Redundancy in case Wi-Fi or 4G fails

What Is SD-WAN?

- A software-defined WAN connects two networks like they're one

- Think: Always-on, encrypted network tunnel between OB and studio

- Like a super-VPN, but easier to manage with UniFi

Why Use UniFi?

- No recurring licence fees

- Centralised cloud or local control

- VLAN support, site-to-site VPNs, LTE failover

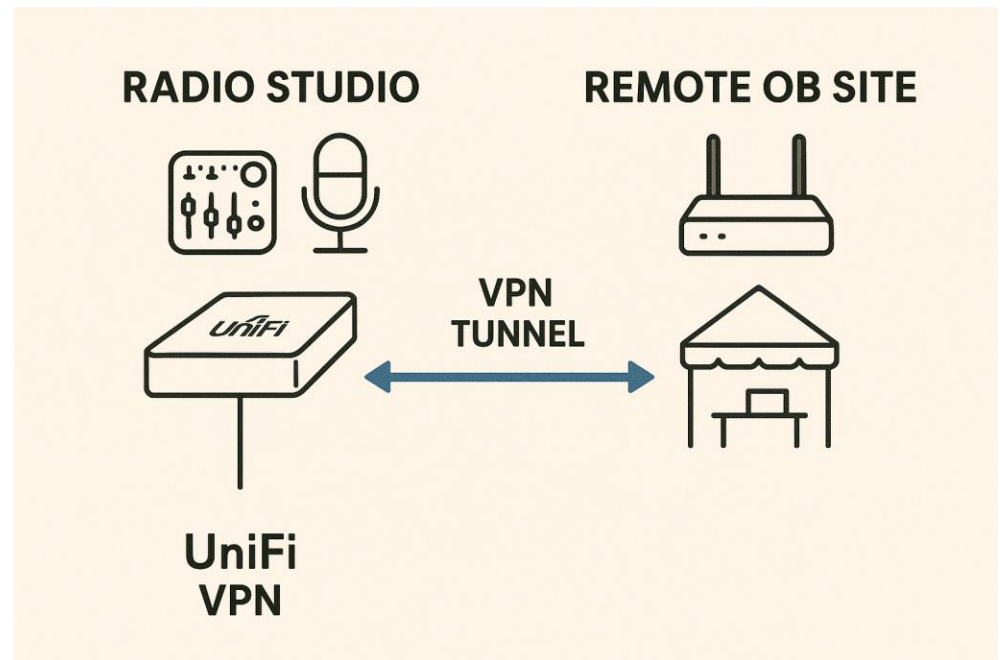- Cost-effective and community radio friendly

The Good News — It's Free

- UniFi site-to-site VPN acts as a free SD-WAN and Unifi Site Magic
- Built into every UniFi Security Gateway, UDM, UDR, etc.
- Just needs compatible gear

OB Network Architecture

RADIO STUDIO   **REMOTE OB SITE**

VPN TUNNEL

UniFi VPN

- OB gear connects to UDR/UXG Onsite
- Site-to-site VPN links it back to studio
- Studio gear sees OB devices as local
- Audio can stream directly

Studio

Hardware You'll Need

- UDM-SE or UXG
- Backup Internet?
- UPS

OB

BUILDING THE OB KIT

- Pack it in a road case:
- UniFi gateway
- LTE router or Starlink KIT
- Network switch
- Power backup
- Patch & labelled cables

Internet Redundancy

- OB site can use:
  - Venue Wi-Fi
  - LTE modem
  - UniFi LTE device
- Failover happens automatically
- Keeps connected if one link drops
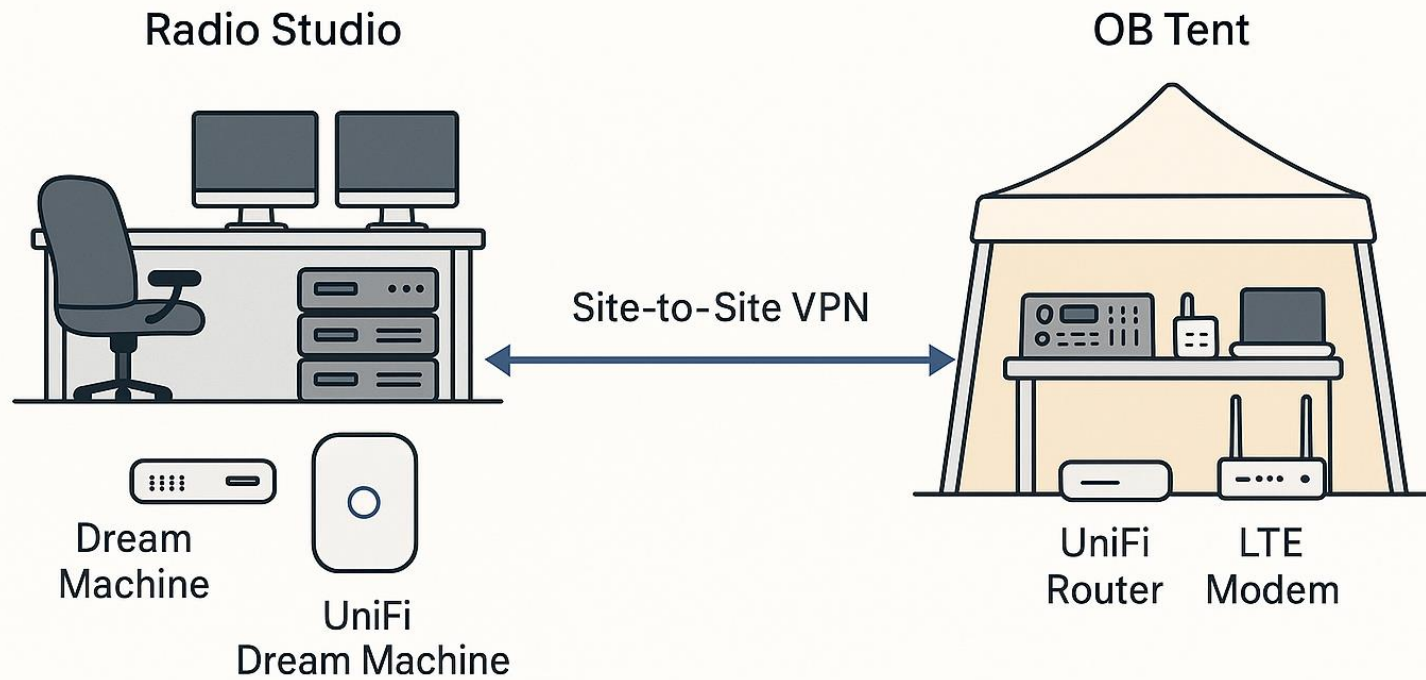
Audio Workflows with SD-WAN

- Push audio from OB codec (Tieline or Cleanfeed)
- Pull audio stream from studio
- Manage playout remotely
- Monitor in real time

Example Deployment

- Station: Example FM

- OB kit with UDR + Teltonika

- VPN connects to UDM-SE at studio

- LTE fallback used 3x in last 12 OBs

- Zero audio dropouts

Radio Studio

OB Tent

Site-to-Site VPN

Dream Machine

UniFi Dream Machine

UniFi Router

LTE Modem

Troubleshooting Cheat Sheet

- VPN not connecting

- LTE unstable

- Audio latency

- Prioritise codec traffic with QoS

What It Costs

- UniFi Router Studio | $500-1000
- UniFi Router OB Site | $300-500
- Teltonika RUT240 | $250
- Case + cables | $200
- UPS | $100-200
- SIM Card Plan
- Starlink Plan??

Benefits Beyond OBs

- Use SD-WAN to link satellite studios
- Remote voice tracking over private tunnel
- Centralise playout or media servers
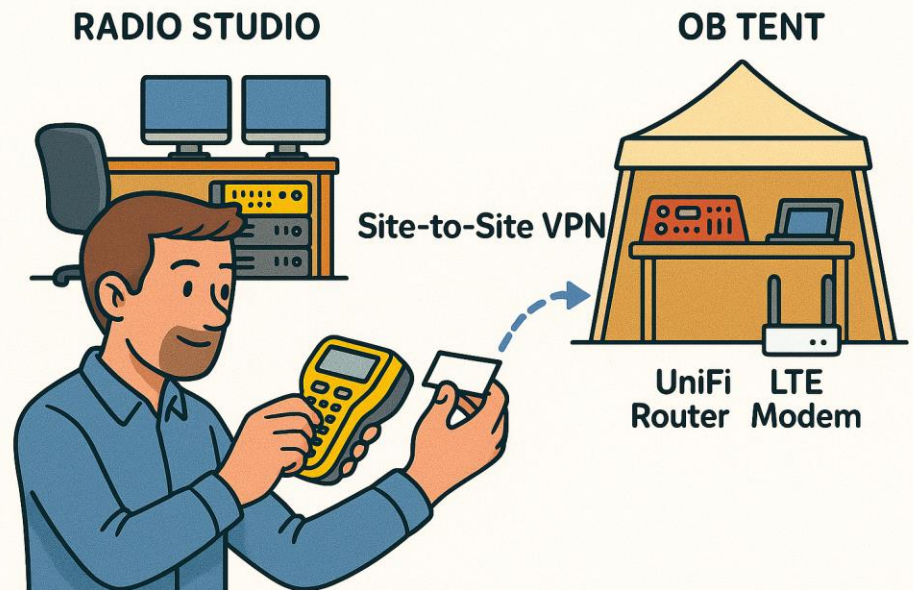- Connect storage or NAS devices securely

Funding Tips

- CBF Tech & Development Grants

- Group buys with other stations

- Budget line item: OB reliability + community outreach

- Ask IT sponsors for in-kind support

Best Practices

- Label everything
- Print a connection flowchart
- Use dynamic DNS for remote access
- Back up router configs
- Train multiple people

What Could Go Wrong?

- Too much reliance on one person
  - Creates point of failure

- Not knowing/Not labelling IPs and VLANs

- Weak LTE reception with no fallback

- Firmware updates on broadcast day!

Your Next Steps

- Audit your OB kit

- Try VPN tunnelling at the station

- Build a prototype kit

- Document it — diagrams, labels, logins

- Test it live before deploying

Summary

- 🔌 SD-WAN makes OBs plug-and-go
- 💡 UniFi gives you the tools — free
- 🎙️ Live radio deserves solid networks
- 🧠 Knowledge-sharing = less downtime

Bonus Resources

- Technorama Talks

- Sample OB kit checklist – see the TR website.

- Coming soon: DocoBlitz

Thanks

"A good OB kit doesn't just connect gear — it connects your station to the community."

Q&A

- Let's talk about your OB kit plans, challenges, or gear choices.

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