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Cloud solutions and sustainability

Lockdown learnings, opportunities and challenges for the future

Nigel Fry, Director Distribution

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Introduction

- Themes
 - Cloud services
 - Sustainability
 - Media in times of crises
- Challenges
 - Doing what we do better – improve our services
 - More efficiently – use less energy
 - Be widely and reliably available – coverage

Reflections

- People who are 'connected'
- People who are not yet connected
 - 2.7Bn people are beyond the mobile data frontier
- Post lockdown working

Cloud services for 'broadcasters' - I

- Accessible with an internet connection
 - Growing skills base
 - Low cost of entry
 - Avoids physical apparatus rooms
 - Increasing library of routines/tools/macros
-
- Channel creation is transformed
 - Quality is ideal for services to mobile devices

Cloud services for 'broadcasters' - 2

- Public
 - Ubiquitous
 - Transactional pricing
 - Highly resilient
 - Short lead times are possible, capacity can be flexed
- Service provider operated
 - Application specific
 - Very resilient
 - Service rather than transactional pricing
- Private
 - More secure?
 - Capital intensive

Cloud services for 'broadcasters' - 3

- Service provider wrapper
 - Public cloud
 - Highly resilient
 - Service delivery to linear and non-linear platforms
 - Hardware functions are virtualized
- Target market is multichannel / multi-market platform operators
 - But smaller operations can benefit from this scale of investment and architecture.

Sustainability

- Spectrum
- Radio services
- Energy consumption / generation
- (Waste)



Sustainability – Spectrum for broadcaster use

- C Band satellite services
 - A mixed economy
 - A favourable outlook?
- UHF TV and PMSE equipment
 - **P**rogramme **M**aking & **S**pecial **E**vents equipment – Radio microphones etc
 - WRC23 Agenda Item 1.5
- Electrical noise in the radio broadcast spectrum – Wireless Power Transfer
 - ITU-R Study Group I
 - CISPR
- Electrical noise – Grid connected power convertors

Sustainability – Spectrum for broadcaster use

Be aware of:

- WRC23 - WBU briefing document for broadcasters
- WPT (not expected at WRC23) – ABU broadcasters can ask regulators for more information through APT meetings

Sustainability – Radio broadcasting

- Efficient coverage
 - For wide areas use the best bands: MW, HF and VHF
- Infrastructure
 - Re-use of current infrastructure (sites and towers) when digitizing the service

Sustainability – Alternative energy sources

- Solar PV panels
- Wind energy convertors
- Energy storage
- Off grid or connected

First sites with renewables



Bamian 30W FM transmitter (2003)



Ascension Island
Five, 330kVA wind energy convertors
(2010)

1kW FM, solar PV pilot in UK



60kWh battery storage (2022)



Sustainability – Consumer device

- The consumer device dominates energy consumption in the distribution chain
 - Set top box and TV
 - The broadband router and computer
- Waste
 - Avoid use of disposable battery cells consider rechargeable devices (USB-C)

Sustainability – Low cost, low power receiver

- Using a new module! 😊
- Analogue and DRM for HF, MF and VHF bands
- Solar or hand cranked power generation
- Validating the concept
 - Verification of service planning for HF
 - Remote monitoring network
 - Receiver sensitivity testing
- To determine if we can reduce transmitted power level/energy consumption

Serving audience in time of crisis

- Ongoing Crises (some HF service areas)
 - Geography,
 - Pandemic (Ebola),
 - Ongoing unrest
- Emergency situations
 - Extreme weather events, flood and famine
 - Geophysical activity
 - Unrest

Ongoing 'crises'

- 2.7Bn people worldwide do not have access to mobile data services
- There's a distinct correlation between rural populations, poverty and inability to access mobile data services
- The MF and HF bands have much to offer people in these situations and digitizing these transmissions transforms the service.

Emergency situations

- Protecting and supporting your colleagues
- Reach and coverage – benefits of remote infrastructure
- Resilient broadcast systems and transmission infrastructure

Summary

- With Cloud Services broadcasters have more opportunity than ever before to operate flexibly and with increased resilience in production and distribution.
- By coupling that to solid transmission systems broadcasters are well placed to serve our audiences whatever their need.
- Sustainable solutions are often lower cost. When possible, using solar PV has many advantages.