Fifthteenth General Assembly

10th February 2021

Welcome New Members

RadioDNS
HYBRID RADIO

Member Presentations

TUNE IN

Radioplayer WORLDWIDE

LABS

EBU

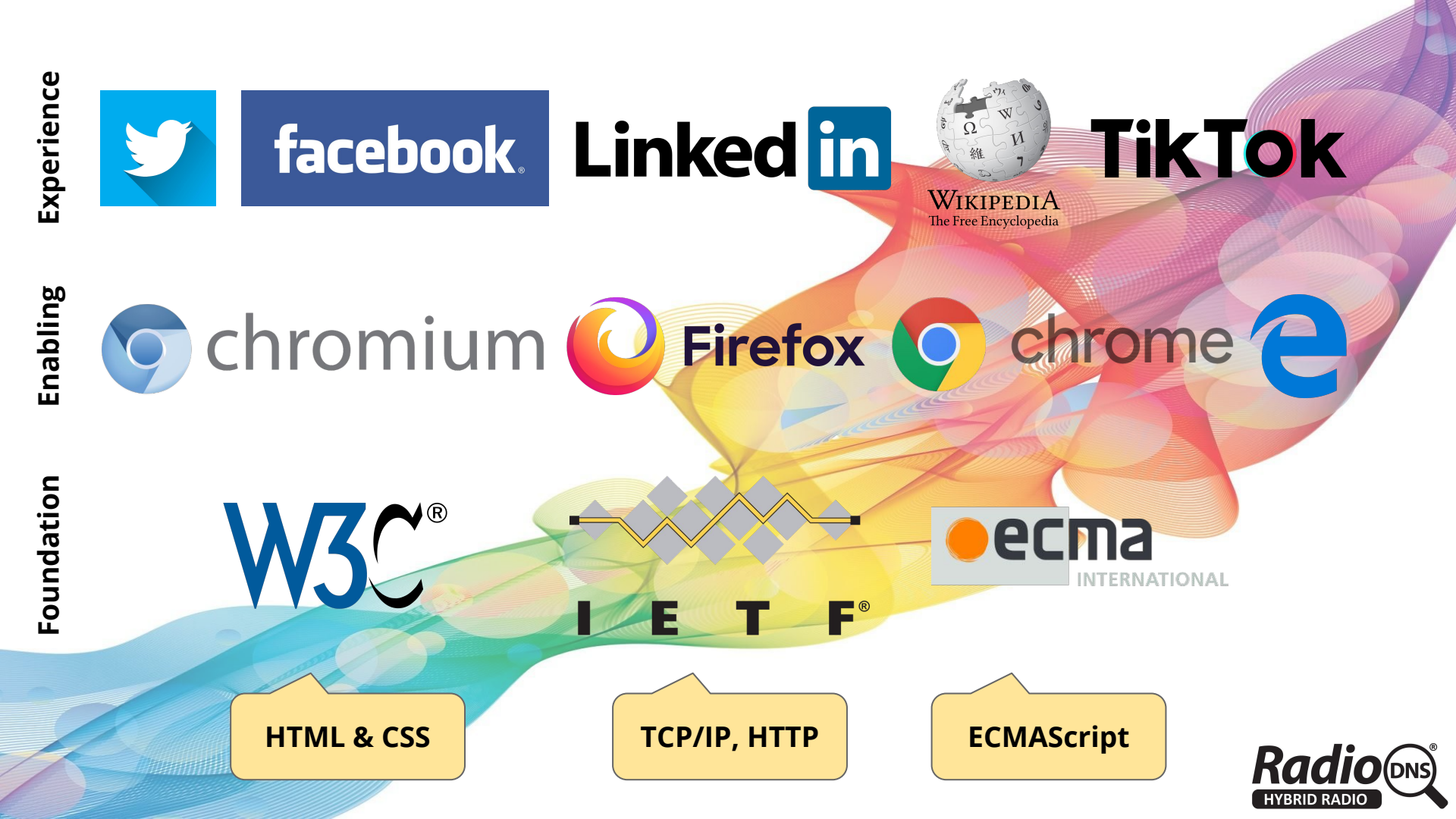
OPERATING EUROVISION AND EURORADIO

RadioDNS HYBRID RADIO

Global Update

Nick Piggott

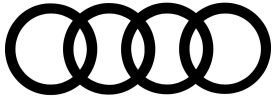
Radio DNS
HYBRID RADIO


Experience
Enabling
Foundation
facebook
LinkedIn
WIKIPEDIA
The Free Encyclopedia
TikTok
chromium
Firefox
chrome
W3C®
IETF®
ecma
INTERNATIONAL
HTML & CSS
TCP/IP, HTTP
ECMAScript
RadioDNS
HYBRID RADIO

Experience

Enabling

Foundation



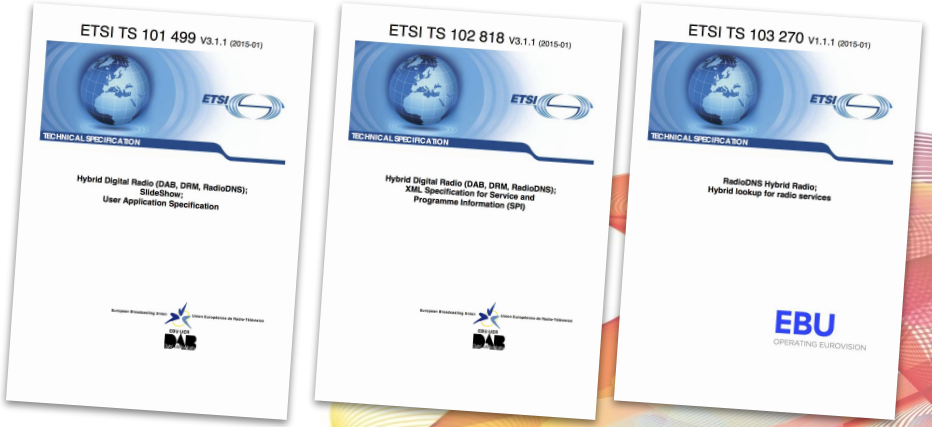
TOYOTA

Radioplayer

DAB

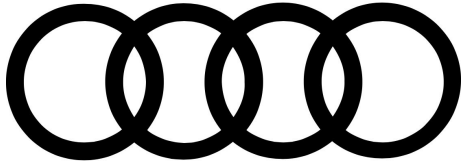
Hybrid

FM-RDS



The only organisation promoting open technical standards for hybrid radio, globally.

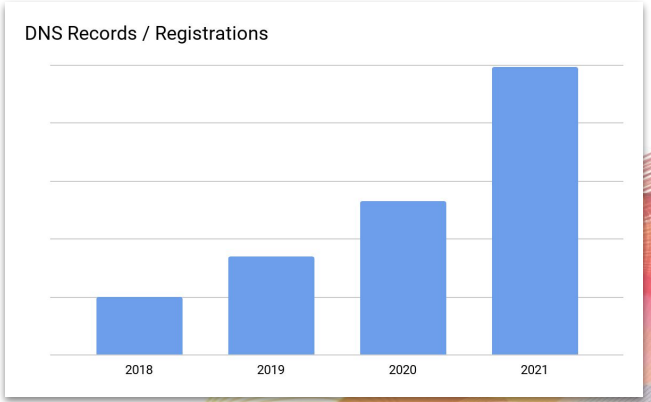
RadioDNS HYBRID RADIO



Implemented in Production Vehicles

PORSCHE

RadioDNS HYBRID RADIO



Continuing growth in participating stations, countries and service providers

RadioDNS HYBRID RADIO

BTS IEEE Broadcast Technology Society

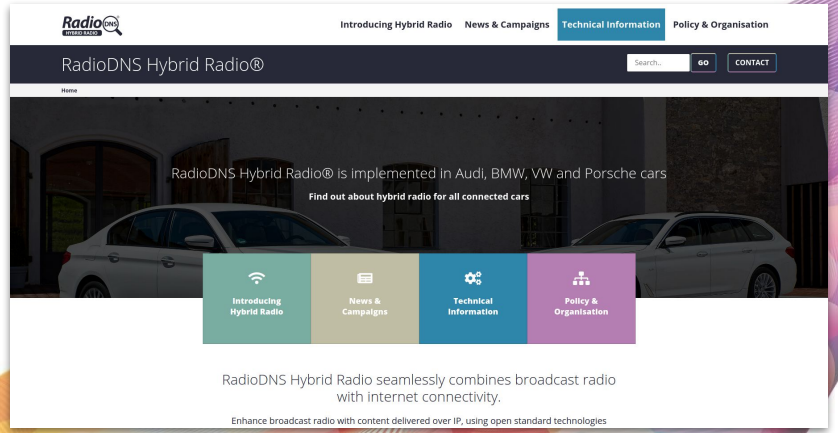
LABS

Increasing membership

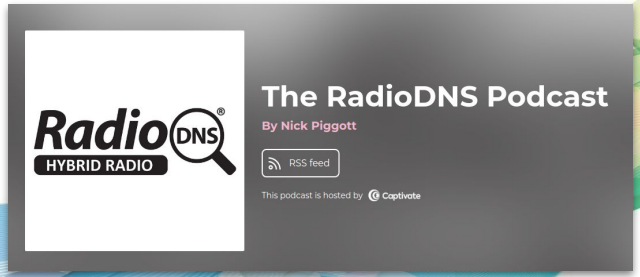
RF2DIGITAL

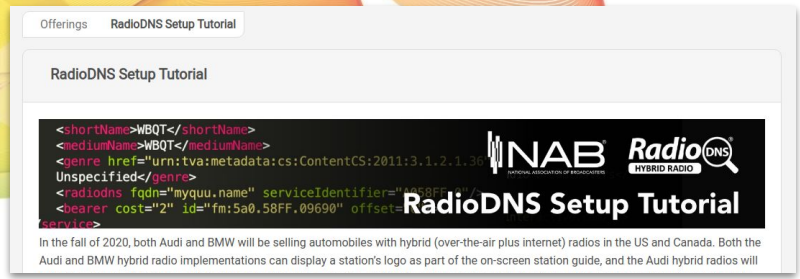
PnpNetwork Technologies Inc

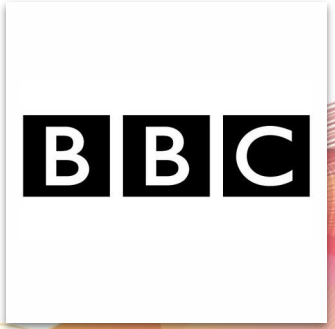
RadioDNS HYBRID RADIO

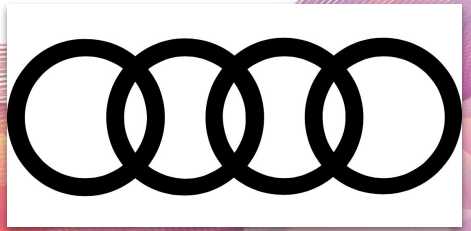


Education and evangelising hybrid radio









Technical standards shaped by our Members for everyone to use

Activities 2020

Operations

Education

Organisation

RadioDNS HYBRID RADIO

Operations

Project Office

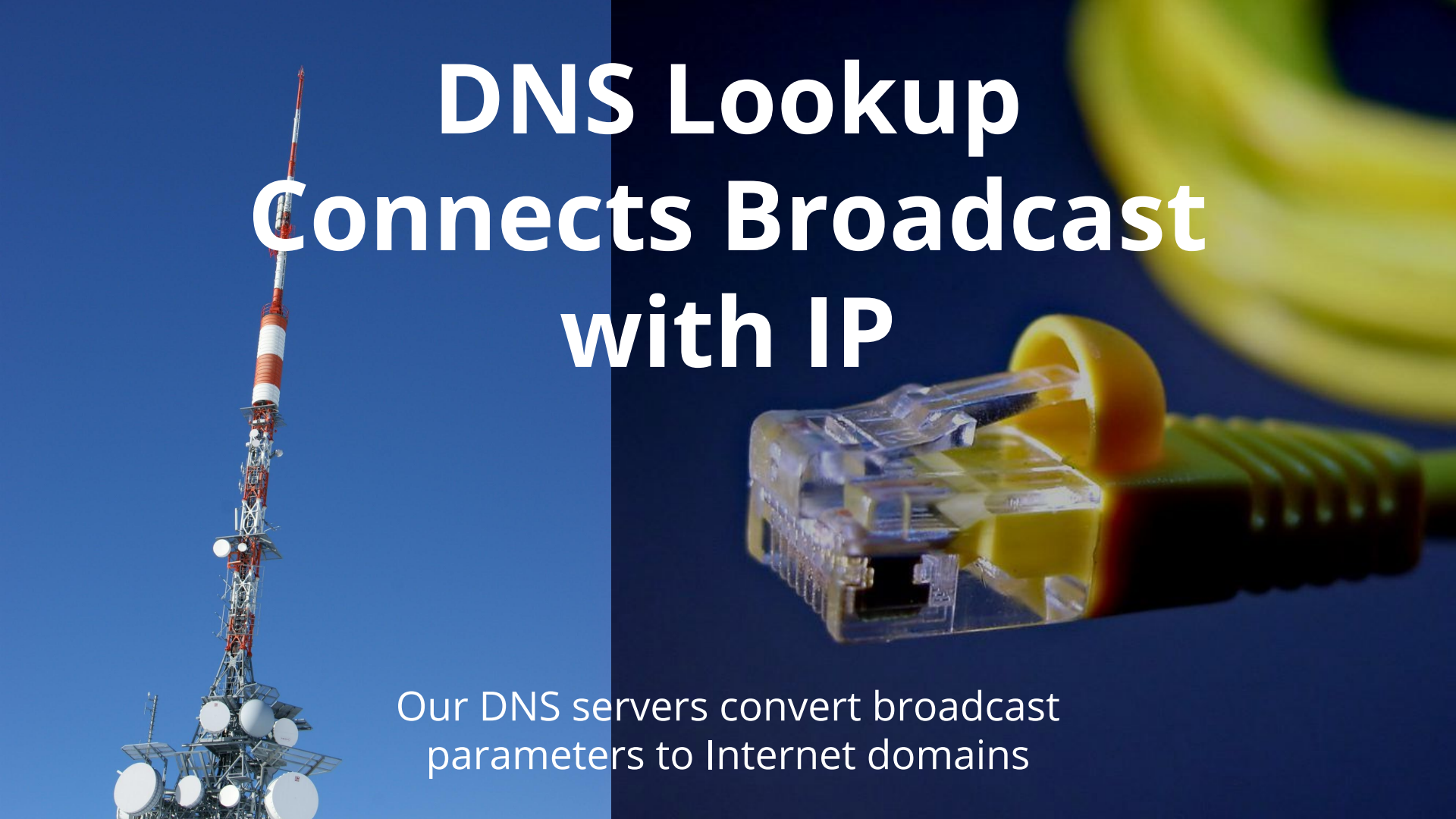
Nick Piggott
Project Director (Part-time)

Rosie Kendrick
Project Coordinator (Part-time)

Andy Buckingham
System Administrator (Part-time)

RadioDNS HYBRID RADIO

DNS Operations



DNS Lookup Connects Broadcast with IP

Our DNS servers convert broadcast parameters to Internet domains

DNS Operations

We have servers in **multiple** global locations

100% uptime for three years

DNS query response time **less than 20ms**

We also operate hbbtvdns.org with DNSSEC

RadioDNS HYBRID RADIO

Trust in RadioDNS

All change requests are **validated**

Valid requests processed in **1 working day**

Typical time to change globally - **60 minutes**

Support

Over **500 requests** handled in 2020

From broadcasters, manufacturers, service providers

Registration requests

Implementation questions

Troubleshooting and fault reporting

RadioDNS HYBRID RADIO

Technical Support Tools

Save **time**, save **money**

For Everyone	For Members only
SI tool helps build simple SI files http://si.radiodns.org	**Platform testing** Checks broadcaster implementations
Basic testing tool https://radiodns.org/technical/testing-tools/	**Device testing** Checks manufacturer implementations
HOWTO Guides Written guides to implementation	**Priority Technical Support** Personalised and specific support

RadioDNS HYBRID RADIO

Education

Education

Why **Hybrid Radio**?

Why **Open Standards**?

Why **RadioDNS**?

How to **implement RadioDNS**?

RadioDNS HYBRID RADIO

Why Hybrid Radio?

Combing broadcast and IP creates a **better experience** of radio than using either individually

RadioDNS HYBRID RADIO

Why Open Standards?

Open Standards are

durable and interoperable,

reduce implementation costs,

and create the **biggest ecosystem** of

content and devices.

RadioDNS HYBRID RADIO

Why RadioDNS?

RadioDNS exists to

accelerate the growth and

decrease the cost and complexity

of implementing hybrid radio

for **everyone**

RadioDNS HYBRID RADIO

How to Implement RadioDNS?

We support

broadcasters, manufacturers and

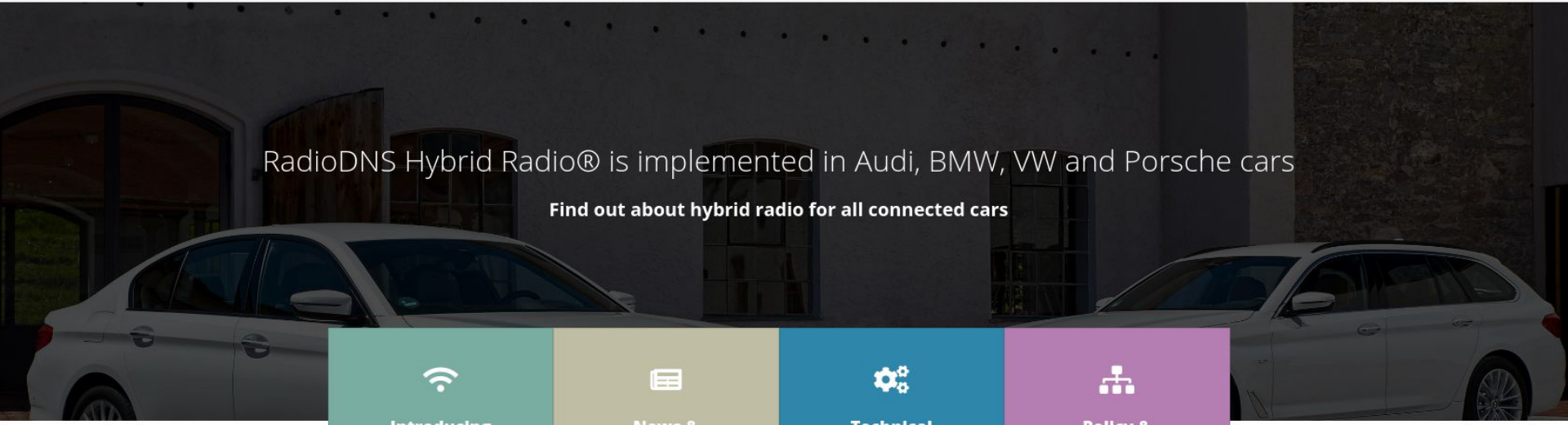
technology providers with

documentation, tutorials and

technical support

RadioDNS HYBRID RADIO

Website



Introducing Hybrid Radio

News & Campaigns

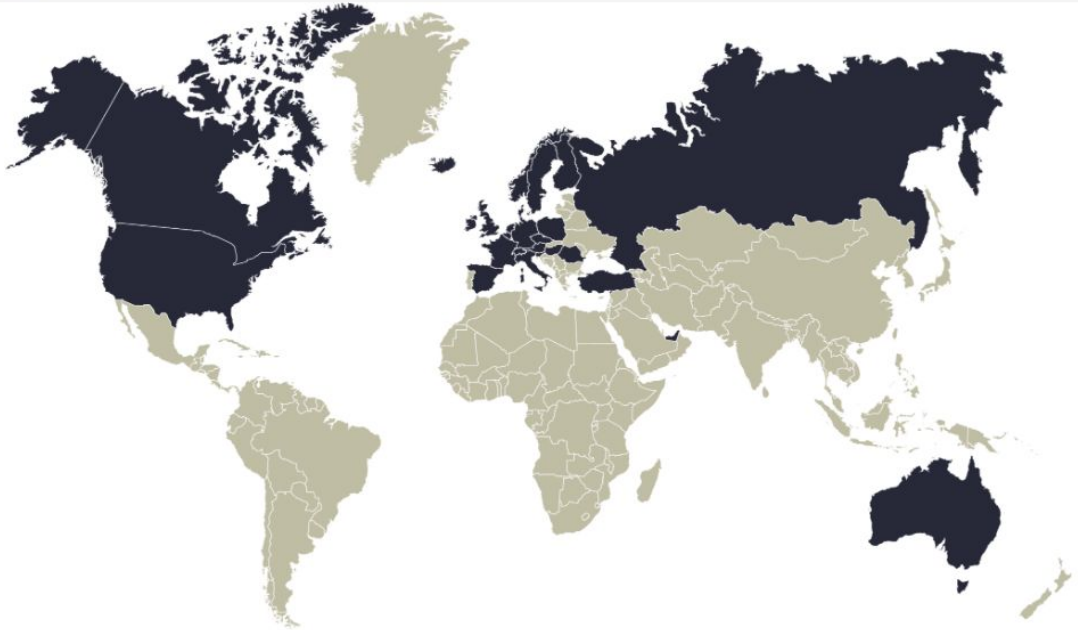
Technical Information

Policy & Organisation

RadioDNS Hybrid Radio seamlessly combines broadcast radio with internet connectivity.

Enhance broadcast radio with content delivered over IP, using open standard technologies

Project Logo Rollout



Here you'll find the updated status and schedule of Project Logo rollout by broadcasters and manufacturers.

Broadcasters by Country

These are the broadcasters who are providing or intending to provide Project Logo meta-data, based

HOWTO

We have a collection of HOWTO documents, which are step-by-step guides to implementing RadioDNS Hybrid Radio functionality.

- **HOWTO – Create Station Logos Descriptions and Other Metadata in an SI XML file using the RadioDNS SI Tool**
- **HOWTO – Make SI files accessible to RadioDNS Hybrid Radio devices**
- **HOWTO – Register your station for RadioDNS Hybrid Radio**
- **HOWTO – Add SRV Records to your Authoritative FQDN**
- **HOWTO – Use the GCC Global Country Code Library**
- **HOWTO – Implementing High Definition Visuals**
- **HOWTO – Restrict listening by time of day / programme**
- **HOWTO – Basic Analytics using RadioDNS**

Technical Presentations

A collection of presentations from technical conferences explaining how to manage RadioDNS Hybrid Radio application systems.

- **Seminar – Code School to Implement an SI.xml File (NAB) – July 2020**
- **Presentation – How to Generate RadioVIS Content – February 2012**
- **Presentation – How to Manage ActiveMQ for STOMP/RadioVIS – February 2012**

Support

Events and Conferences

Education in Person

RadioDNS HYBRID RADIO

RadioDNS In Real Life

Making the vision **real and tangible**

Interactive discussion

Making **new contacts**

RadioDNS HYBRID RADIO

Other Events and Meetings

Automotive Workshops (with WorldDAB)

Our “round-table” interactive discussion between broadcasters and manufacturers.

Broadcaster and Automotive Manufacturers

One to one meetings to discuss specific questions

Industry Groups

Presentations - NAB Radio Technology Committee, WorldDAB Technical Committee,

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2020 Tour

EBU Digital Radio Summit Geneva, February	**ABU Digital Broadcast Summit** Kuala Lumpur, March	**RadioDays Europe** Lisbon, March
NAB Show Las Vegas, April	**TU Automotive** Detroit, June	**IBC** Amsterdam, September
NAB Radio Show Nashville, September	**TU Automotive** Munich, October	**WorldDAB General Assembly** Brussels, November
	CES Las Vegas, January 2021	**European Radio Show** Paris, January 2021

CANCELLED

RadioDNS HYBRID RADIO

2020 Tour - Revised

CES 2020 Las Vegas	**EBU Digital Radio Summit** Geneva, February	**ABU Digital Broadcast Summit** Kuala Lumpur, March
	Online	
NAB Express	**WorldDAB GA**	**CES Online**

RadioDNS HYBRID RADIO

Social Media

@RadioDNS
Announcements and events

youtube.com/radiodns
Promotional and education videos

linkedin.com/company/radiodns
Articles and news

The RadioDNS Podcast

By Nick Piggott

RSS feed

This podcast is hosted by Captivate

RadioDNS Podcast

Monthly update - 30 minutes long

Guests who are implementing RadioDNS

Episodes 1 & 2 **out now**

At **Apple Podcasts, Google Podcasts** and all the others

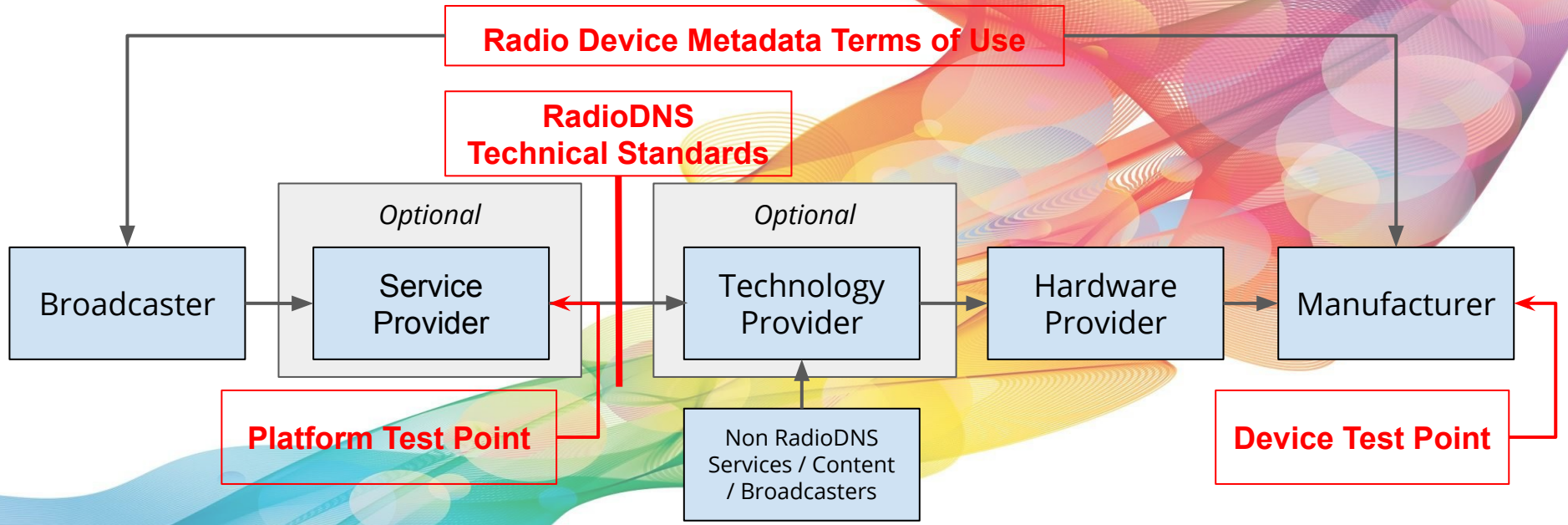
RadioDNS HYBRID RADIO

Organisation

How can we grow hybrid radio faster?

RadioDNS HYBRID RADIO

Our presence in Hybrid Radio



Removing Obstacles

Standards that address **business needs**

Acceptable usage of content and metadata

Process **efficiency**

RadioDNS HYBRID RADIO

Project Logo

Consistency of Metadata for Radio

RadioDNS HYBRID RADIO

Project Logo

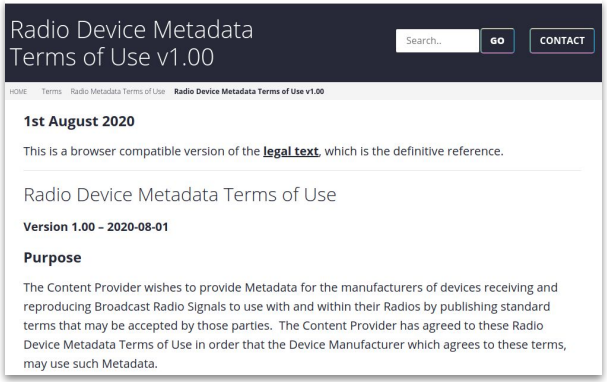
Consistent metadata from radio stations

The **baseline** for hybrid radio participation

One format, many providers, many destinations

Standard **reduces** implementation costs

RadioDNS HYBRID RADIO



Terms of Use

Consistency of "Acceptable Use"

RadioDNS HYBRID RADIO

Radio Metadata Terms of Use

```
</mediaDescription>
<mediaDescription>
  <multimedia height="128" url="http://owdo.thisisglobal.com/2.0/id/145/logo/128x128.png" width="128" mimeValue="image/png"/>
</mediaDescription>
<mediaDescription>
  <multimedia height="240" url="http://owdo.thisisglobal.com/2.0/id/145/logo/320x240.jpg" width="320" mimeValue="image/jpg"/>
</mediaDescription>
<mediaDescription>
  <multimedia height="600" url="http://owdo.thisisglobal.com/2.0/id/145/logo/600x600.jpg" width="600" mimeValue="image/jpg"/>
</mediaDescription>
<mediaDescription>
  <multimedia height="800" url="http://owdo.thisisglobal.com/2.0/id/145/logo/800x800.jpg" width="800" mimeValue="image/jpg"/>
</mediaDescription>
<link mimeValue="text/html" uri="http://www.capitalfm.com/birmingham/"/>
<link uri="http://www.tunein.com/radio/s-s25008"/>
<link mimeValue="text/html" uri="http://en.wikipedia.org/wiki/Capital_Birmingham"/>
<bearer bitrate="48" cost="70" id="http://media-ice.musicradio.com/CapitalBirmingham" mimeValue="audio/aacp" offset="16000"/>
<bearer bitrate="128" cost="73" id="http://media-ice.musicradio.com/CapitalBirminghamMP3" mimeValue="audio/mpeg" offset="10000"/>
<bearer cost="30" id="fm:ce1.c670.10220"/>
<bearer cost="20" id="dab:ce1.c183.c670.0" mimeValue="audio/mpeg" offset="2500"/>
<bearer cost="20" id="dab:ce1.c18b.c670.0" mimeValue="audio/mpeg" offset="2500"/>
<genre href="urn:tva:metadata:cs:ContentCS:2004:3.6.10">Hit-Chart/Song Requests</genre>
<genre href="urn:tva:metadata:cs:ContentCS:2004:3.6.8">Electronic/Club/Urban/Dance</genre>
```


These terms are applicable to metadata and content provided or referenced to by documents specified in TS 102 818 Service and Programme Information.

RadioDNS is not a party to these terms. They are provided only as a template that two parties can refer to.

Why Standard Terms?

These Terms can be reviewed by manufacturers to make sure they are using metadata and content in the right way. If they do, then they know they can use **any** metadata or content offered under this licence, which avoids an otherwise impossible task of reviewing terms from many broadcasters.

- I**f you are a broadcaster** then adopting these Terms means your content and metadata is more likely to be used.
- **If you are a manufacturer** then following these Terms gives you the widest access to metadata and content.

Radio Metadata Terms of Use

Consistency of **"acceptable use"**

Easy to **offer**, easy to **accept**

Recommend adoption by everyone

https://radiodns.org/terms/metadata/

RadioDNS HYBRID RADIO

Client ID

Identifying Trusted Partners

RadioDNS HYBRID RADIO

Client ID

Provide general content to **anyone**

Provide valuable content to **trusted partners**

Reducing the cost of **bilateral agreements**

RadioDNS HYBRID RADIO

Automotive Workshops

Finding and resolving obstacles

Automotive Workshops

Round-table **discussion**

Broadcasters **and** Manufacturers

Issues that need **improving / resolving**

February, June and October 2020

RadioDNS HYBRID RADIO

Topics

Service Following / Switching

Real time and Service information

Analytics

Reporting & **Solving Problems**

Technology Group

Chair, Ben Poor (EBU)

Role of the Technical Group

To **develop** and implement RadioDNS standards

Open to **members** of RadioDNS

Work arranged in "**Project Teams**"

Current Membership

Geo-fencing

Control access to content based on **location**

Restrictions created by **rights licensing**

Update to **Service & Programme Standard**

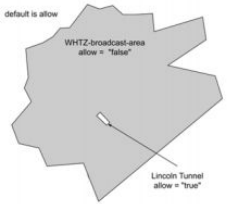


Figure 2: Graphical representation of example 4 for IP streaming bearer

EXAMPLE 5: Against a **bearer** element, indicating that the stream may only be used within the country "GB"

```
    <bearer cost="110" bitrate="48"
id="http://britishbroadcaster.com/uk_stream">
            <geolocation allow = "false" />
            <geolocation allow = "true">
                  <country>GB</country>
            </geolocation>
    </bearer>
```

The first **geolocation** element reverses the default usability to deny access. The second **geolocation** element allows the streaming **bearer** to be used when the receiver is located within the UK. A receiver that cannot determine its location cannot use the stream (there is a **geolocation** element with **allow** attribute set to `false`).

Figure 3: Graphical representation of example 5 for IP streaming bearer

RadioDNS HYBRID RADIO

Analytics

- HOWTO – Restrict listening by time of day / programme
- HOWTO – Basic Analytics using RadioDNS

A HOWTO for **basic analytics** is available now

Creating a standard for more detailed **usage data**

Implementation with **Client ID** is likely

Reducing implementation costs

RadioDNS HYBRID RADIO

Real-Time Data

Updating our **Visuals standard**

More modern "**push**" technology

Add in **machine-readable** metadata

RadioDNS HYBRID RADIO

Other Items

Guidance on **IPv6**

Support for **more streaming formats**

Support for **advanced voice control**

RadioDNS HYBRID RADIO

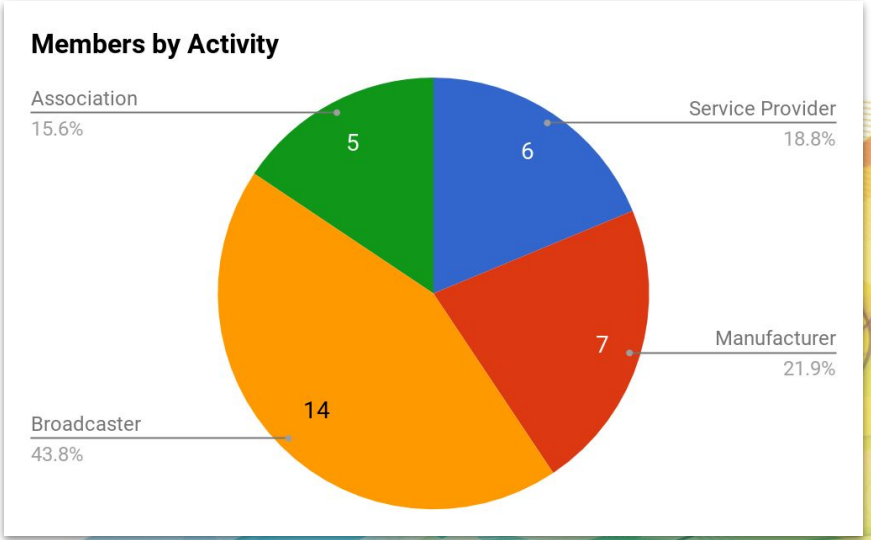
Growth

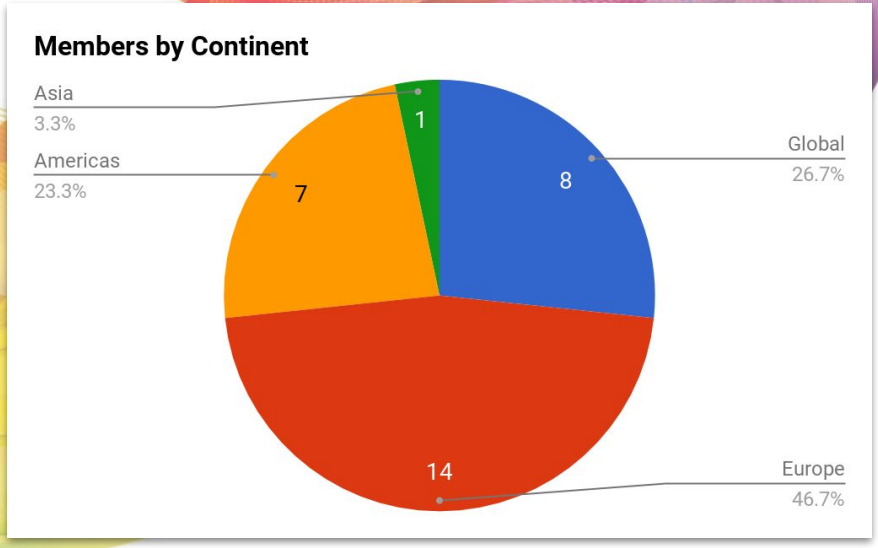
Membership

Members at start 2020	**30**
Members resigned	2
Members removed	0
Members joined	4
Members at start 2021	**32**

Ambition to reach 34 members in 2021

Membership Analysis





Coverage Growth

New country - **Latvia** 

More broadcasters in **10 countries**

Biggest growth country - **USA**

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Vehicle Coverage

Audi

As standard with Audi Connect

BMW Connected Drive

As standard with BMW Connected Drive

VW

As standard with We Connect

RadioDNS HYBRID RADIO

DNS Registrations

+41%

increase in registrations during 2020

RadioDNS HYBRID RADIO

2021 Strategy & Plans

Nick Piggott

RadioDNS HYBRID RADIO

Remove Obstacles to Growth

Education to explain the benefits of RadioDNS

Support to help people implement RadioDNS

Standards that address **business needs**

Grow **services, manufacturers, members**

RadioDNS HYBRID RADIO

Events and Conferences

Education in Person

RadioDNS HYBRID RADIO

2021 Tour - Planned

NAB Show 2021 Las Vegas, October	**RadioDays Europe** Lisbon, October	
IBC 2021 Amsterdam, September	**WorldDAB GA** TBC	**CES 2022** Las Vegas, January 2022
	Online	
EBU Digital Radio Summit	**WorldDAB Hybrid Radio Event**	

RadioDNS HYBRID RADIO

Communications

More **articles** online / social media / LinkedIn

New **Podcast** episodes

Minor updates to **Website** content and navigation

Automotive Workshops

Twice a year

Guidelines on **Driver distraction**

Detailed Research of current implementations

Establish a hub of **problem solving**

RadioDNS HYBRID RADIO

Broadcasters

Manufacturers

Technology Providers

RadioDNS HYBRID RADIO

Broadcasters

Get more services **implementing** RadioDNS

Adoption of Radio Device Metadata **Terms of Use**

Support provision of **Realtime Information**

Engagement with **Analytics**

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Manufacturers

Get more cars **using** RadioDNS

Follow Radio Device Metadata **Terms of Use**

Education about **Analytics**

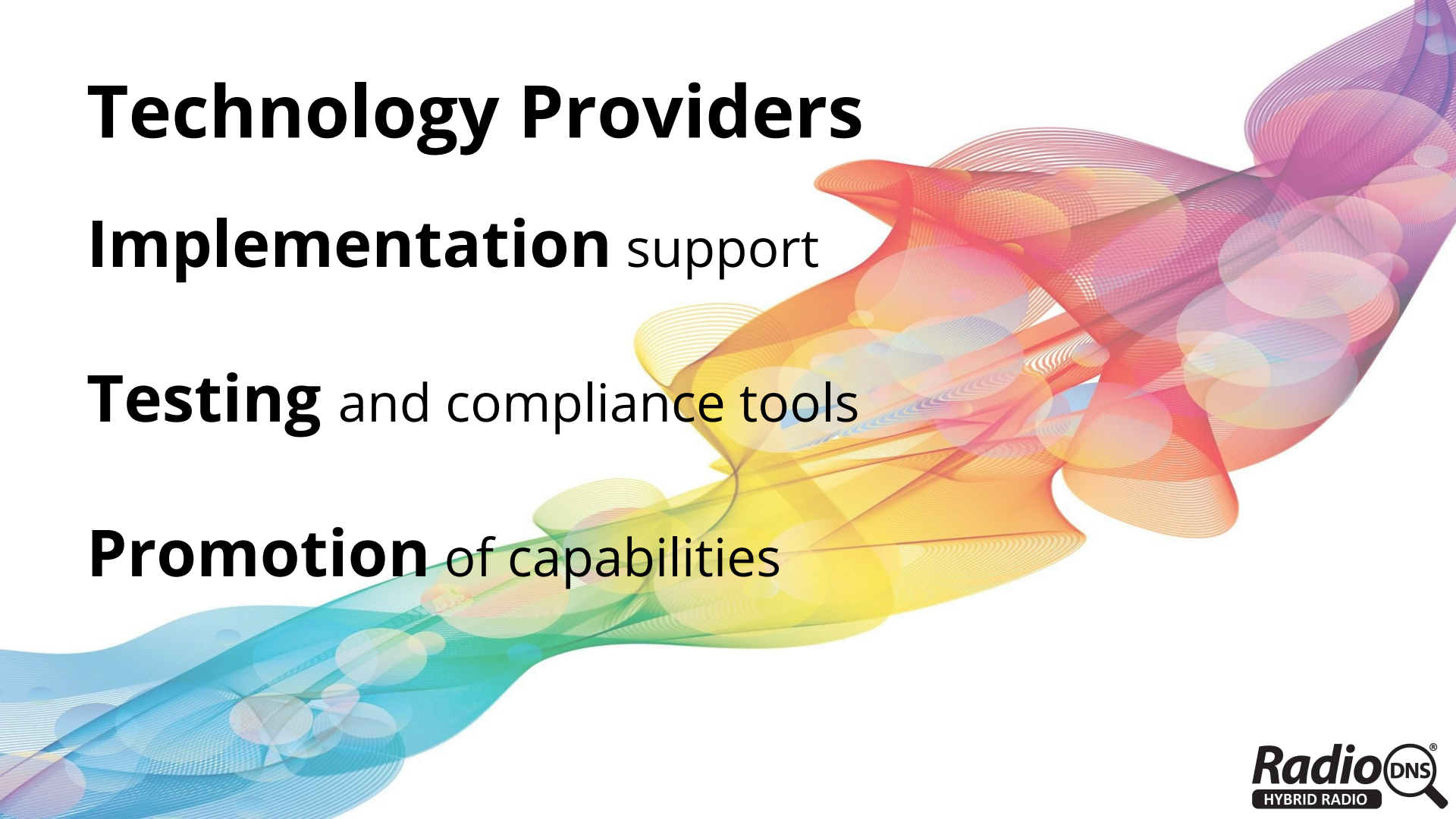
RadioDNS HYBRID RADIO

Technology Providers

Implementation support

Testing and compliance tools

Promotion of capabilities



Operations

Internal Systems

Link **documentation** to support platform

Improve DNS **management systems**

Prototype proposed tech standards

Updates to **online support tools**

Radio DNS HYBRID RADIO

Technology Group 2021

Ben Poor

RadioDNS HYBRID RADIO

Analytics

Draft proposal circulating now for comments

Create prototypes to **validate tech**

Draft a **new standard for Analytics**

Publish

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Push Content / Metadata

Draft proposal circulating now for comments

Create prototypes to **validate tech**

Update **Visuals Standard (TS 101 499)**

Publish

RadioDNS HYBRID RADIO

New Streaming Formats

Draft proposal circulating now for comments

Create prototypes to **validate tech**

Update **SPI Standard** (TS 102 818)

Update **Look Up Standard** (TS 103 270)

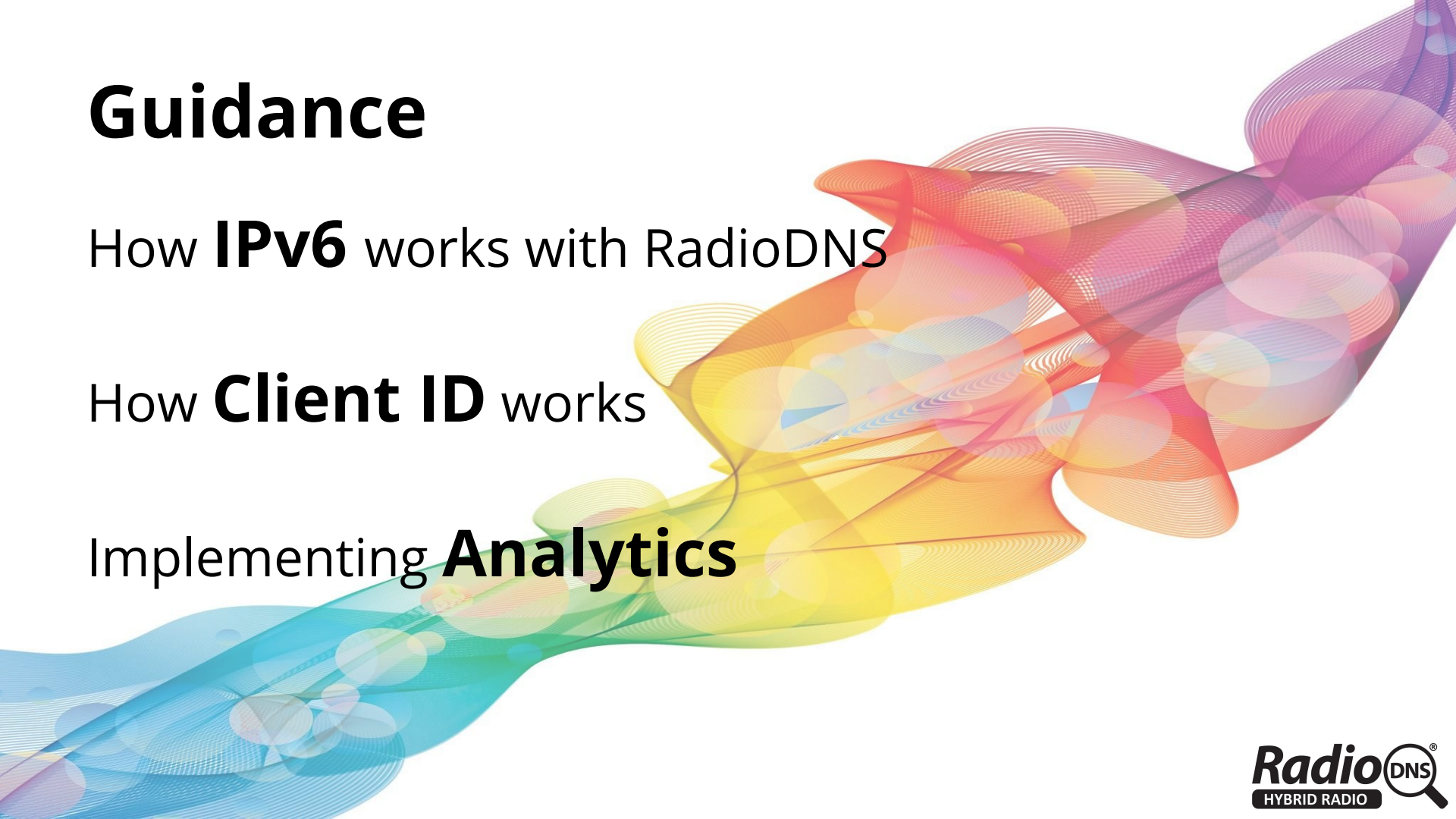
RadioDNS HYBRID RADIO

Guidance

How **IPv6** works with RadioDNS

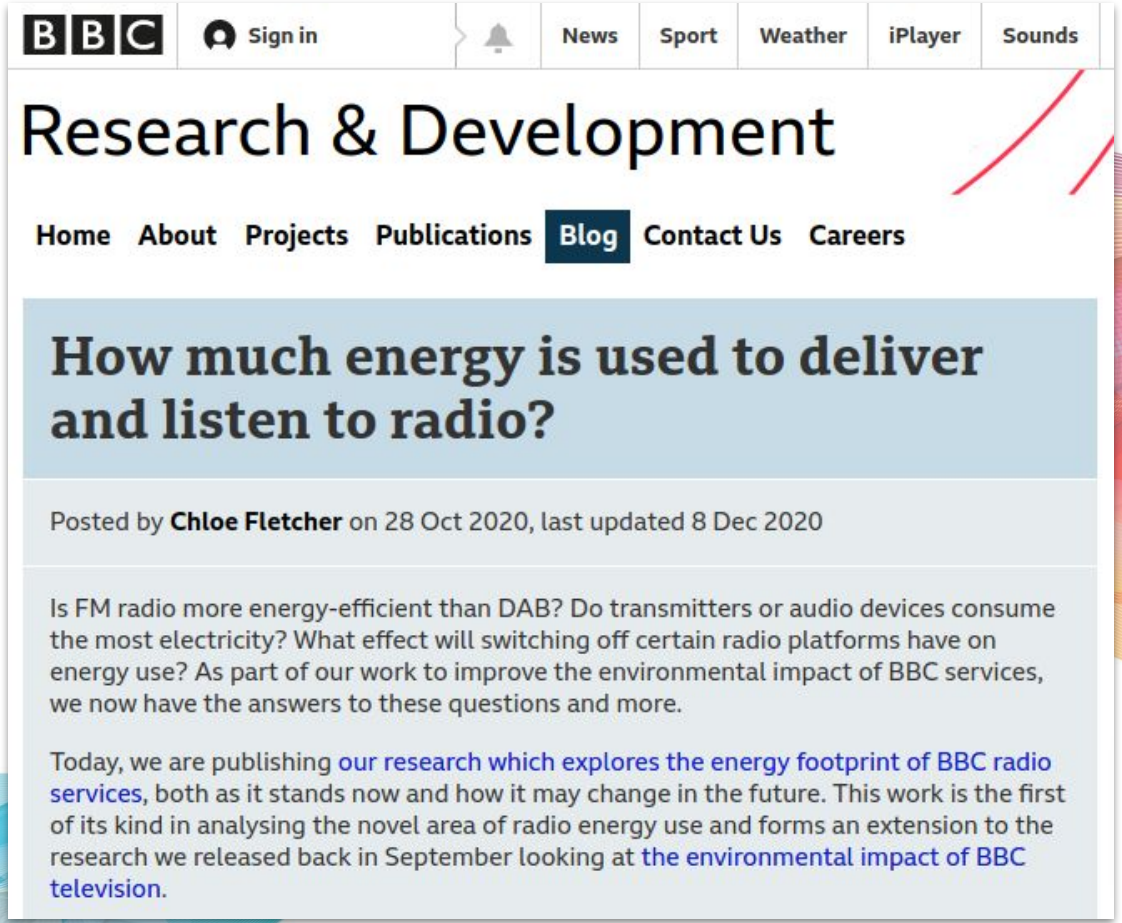
How **Client ID** works

Implementing **Analytics**



Sustainability

RadioDNS HYBRID RADIO



https://www.bbc.co.uk/rd/blog/2020-10-sustainability-radio-audio-energy-streaming-broadcast

RadioDNS HYBRID RADIO

Sustainability

What's our **organisation** sustainability?

How does **hybrid radio** help sustainability?

Fifthteenth General Assembly

10th February 2021