Global Standards for Hybrid Radio

Nick Piggott - Chairperson

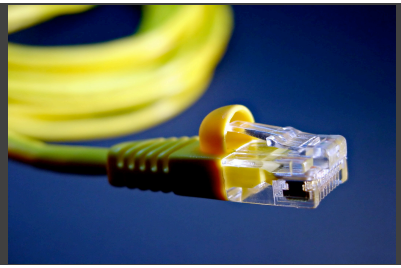
Hybrid Radio

Broadcast works for the mass market

Low Cost, Ubiquitous, Free

The Internet adds additional value

Enhanced content and Transactions



Reliable, Efficient

- **Broadcasting** has unique strengths over wireless IP
  - Guaranteed and broadcaster controlled Coverage and Quality of Service
  - Spectrum usage is more efficient than uni- or multi-cast IP on 3G/4G

Connecting Broadcast & IP

- Converged, **connected** mobile phones
  - FM / DAB / DAB+ / HD Radio
  - LTE / 4G / 3G / WiFi / Wired
- **Re-package** Broadcast Radio - make it look like streaming radio?
  - Audio over reliable broadcast
  - Meta-data and enhancement data over IP

Open Standards for
Hybrid Radio

The RadioDNS Approach

- **Open** standards, **open** source - **no patents**, no licences
- **Simple** technology - **re-purposing** what already exists
- **One** global standard that works with **all** broadcast radio
- **Open** organisation - **trustworthy**, reliable, transparent
- We’re a **not-for-profit** operation

Use existing meta-data

- Stations are already **uniquely** described
  - FM – frequency, RDS-PI code, country code
  - HD Radio – FCC facility code
  - DAB – service, ensemble and country Ids

- Map these unique identifiers into the **IP domain**

Map broadcast to IP

- Use existing DNS (Domain Name System)
  - Hugely scalable, widely implemented
  - Already installed on **all** IP devices

- Create a standard formula to create FQDNs
  - FQDN – fully qualified domain name
  - FQDNs – owned and controlled by the broadcaster

RadioDNS Example

- Classic 21, Brussels, Belgium
  - FM – 93.2MHz, PI Code 6354, country be,
  - DAB – SID 6354, EID 6005, ECC 6e0
- Standard conversion to FQDNs
  - 09320.6354.be.fm.radiodns.org -> rdns.ebulabs.org
  - 0.6534.6005.6e0.dab.radiodns.org -> rdns.ebulabs.org

Our Progress

RadioDNS Today

- radiodns.org root nameserver has operated with **>99.999% uptime** since May 2008
  - Hosted on multiple servers on multiple continents
- **Thousands** of stations in the DNS
  - Some public, some on trial
- Published, stable, **standards**
  - Available at http://radiodns.org/docs

HD Radio®

R·D·S

WORLD
DAB
The future of
DIGITAL BROADCASTING
Radio • Mobile TV • Multimedia • Traffic Info

Visual Information for Radio

Dynamic

Striking

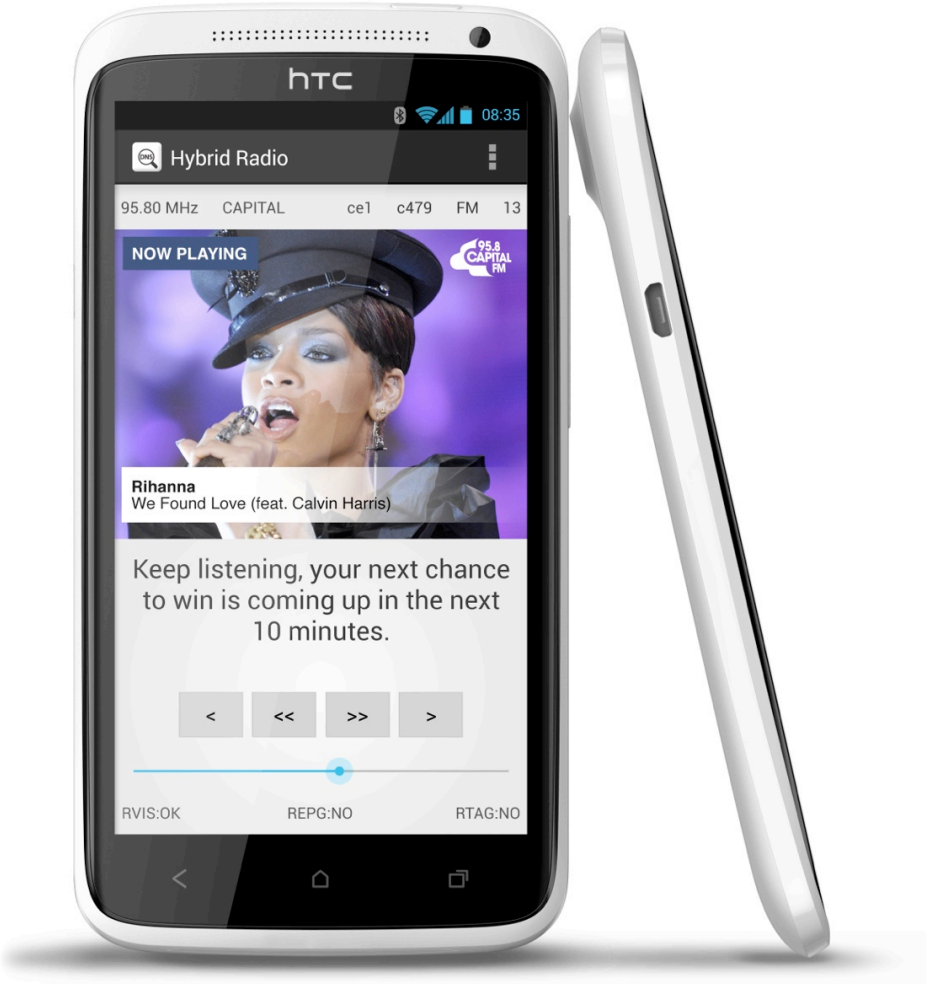
Clickable

Radio VIS

Programme Information
Station Names & Icons
Descriptions
Frequencies / URLs
Radio EPG
O2
07:04 AM
Radio Browser
Location: London, United Kingdom
Station
Artist
Genre
heart
gold
capital
BBC London
Favourites
Popular
Featured
Search

FM-IP Switching

Switch automatically between FM Radio
and IP Streaming
Demonstration videos at radiodns.org



FREE FUEL FOR A YEAR
JAN
DEC
CITROËN C4
CITROËN
Free fuel for a full year with any Citroën C1, C3, C3 Picasso, new C4, C4 Picasso and Grand.
For more information and to receive your Free Fuel Voucher, visit www.citroen.co.uk

RadioTAG

MEMO
TAG

FREE FUEL FOR A YEAR
JAN
DEC
Tagged
CITROËN C4
CITROËN
Free fuel for a full year with any Citroën C1, C3, C3 Picasso, new C4, C4 Picasso and Grand.
For more information and to receive your Free Fuel Voucher, visit www.citroen.co.uk

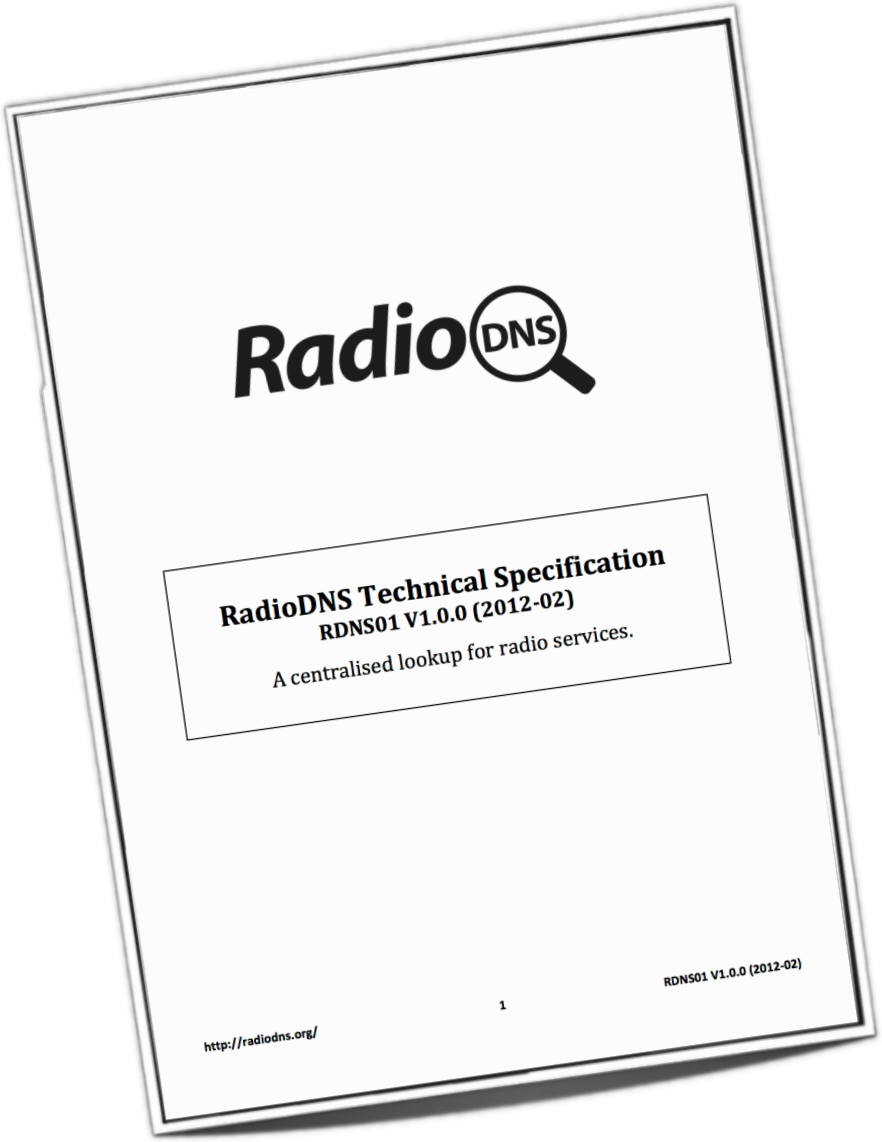
Radio TAG

my tags

One-touch Interactivity
“If you hear anything interesting on the radio, just push the button”
Time-shifting interaction

RadioTAG

- Works for **all formats** of radio station
  - Speech, music, news, sports etc.
- All stations will promote it the **same way**
  - The **response** will vary by station / format
- Holding onto **impulses of interest**



14 pages long

Re-uses **existing technologies** in a new way

Builds on **established** Internet Tools

Quick to deploy

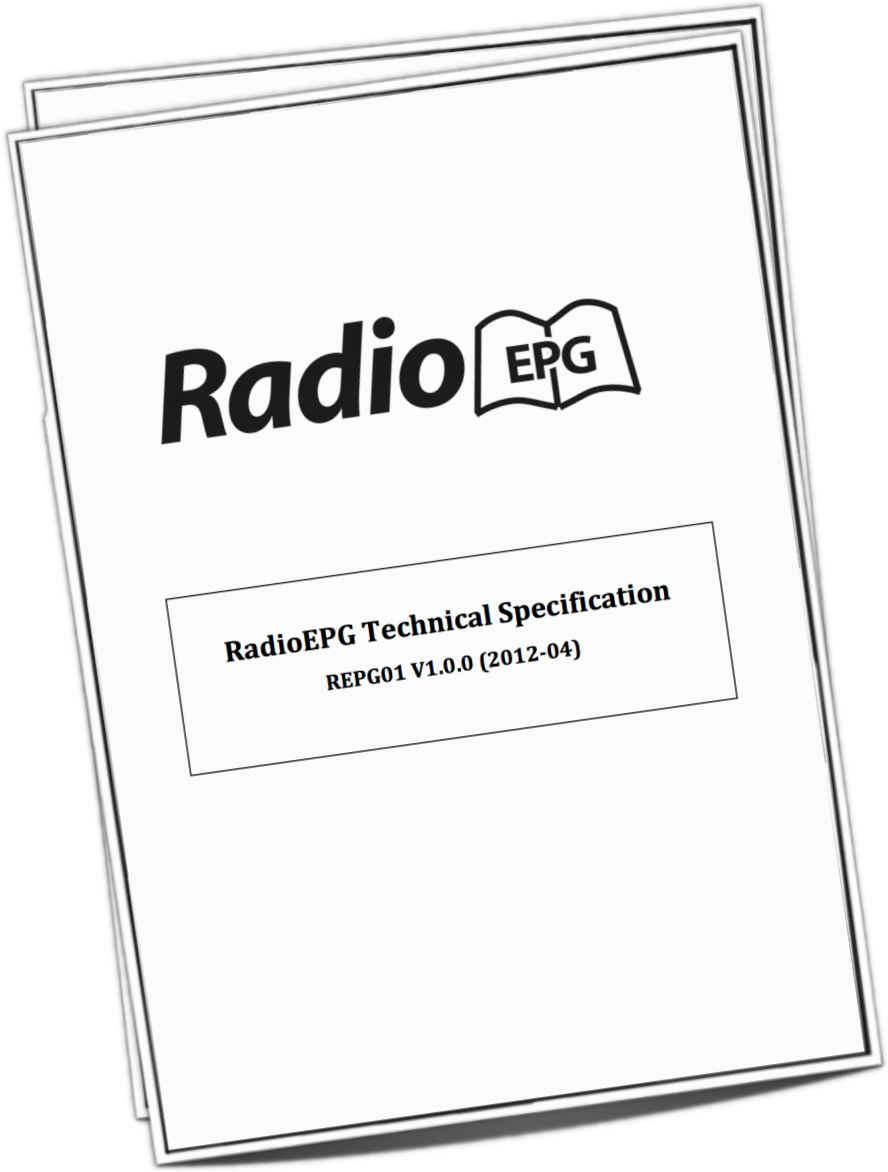
RadioVIS

Radio, visualised

Simple to produce **visuals**

Supports **multiple resolutions** and screen densities as requested by the client device

Device caching possible to **reduce bandwidth** requirements



Radio EPG

List by name and logo
Follow across FM/HD & IP

Service information provides logos and station names

Programme information provides detail on individual programmes

Enables **automatic following** between broadcast and IP streaming, with **delay hinting** information

RadioTAG

Interactivity for radio

"One Touch" **Interactivity** for radio

Designed strongly with **automotive** / mobile in mind

Tag now, view your list of tags **later** (on device, mobile, web)

Time-shifted interactivity

Winner 2012 Radio Academy Technical Innovation Award

Winner 2012 NAB Technical Innovation Award

Common Attributes

Enhance **broadcast radio**

Re-use **existing technologies** or use widespread Internet technologies

Designed to target the device ***directly***

Simple **entry-level** points for Broadcasters and Manufacturers

Broadcasters and/or Manufacturers can delegate **Service Providers** to provide services for them

EBU

NPO

BBC

FRONTIER
SILICON

wrs
WORLDRADIO.CH

global
RADIO

RADIOSHOW
Produced by RAB and NAB
September 19-21 / Dallas, Texas

clearchannel
MEDIA + ENTERTAINMENT

COXMEDIA
GROUP

global
RADIO

BBC

FRONTIER
SILICON

EBU

REVO
Not Fair
Seek
FM
AXiS

htc
13:13
96.3 MHz
FM (rssi: 12)
heart
Now Playing
TRAIN - Drive By
On air now
Afternoons with Nick Snaith 1pm - 4pm
RDNS Lookup Complete
seek
RadioVIS: YES
RadioEPG: YES
RadioTAG: YES
On Air Now: Nick Snaith 13:00 - 16:00
PI: c36b
Freq: 9630
Country: gb
beatsaudio

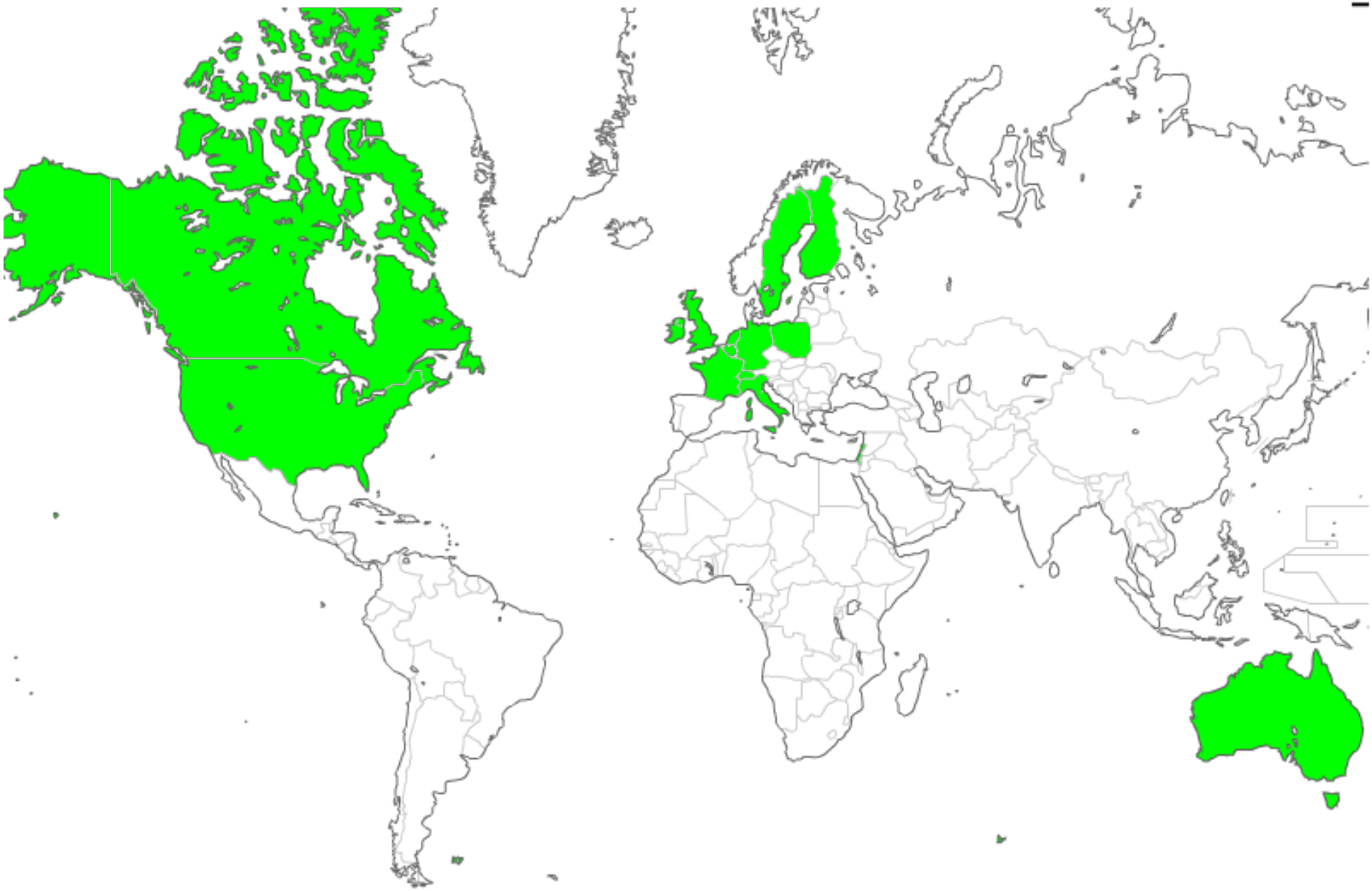
PURE
sensia
PURE
PURE

PHILIPS

BBC

ARD

- 143m population
- 70m listeners/week



gmgradio

Absolute
Radio

commercial radio

FRONTIER
SILICON

NAB

Imagination
TECHNOLOGIES

BBC

EBU·UER

clearchannel
MEDIA + ENTERTAINMENT

mediauk

IRT

ABC

global

BAUER
radio

SRG SSR

tunein
RADIO

orion

SWR
SÜDWESTRUNDFUNK

UBC media group

vTuner

COXMEDIA
GROUP

backend-
systems.net

RECIVA
INTERNET RADIO

rtbf.be
Radio-Télévision belge
de la Communauté française

aim
All In Media

iBIQUITY

emmis interactive

What Now?

- We would like more **Broadcasters** involved
- Being a Supporter is **Free**
- **Members** can attend meetings and vote (€3,300/yr)
- **feedback@radiodns.org** / **http://radiodns.org**

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