



## VOV / WorldDMB Workshop on Digital Radio Technologies

27-29 July 2013

*The Melia Hotel & VOV HQ Building,  
Hanoi, Vietnam*



Supported by



## DAB+ Content Generation

Friday 26 July 2013, Session 4

Mr. Wilson Ng, Digital Systems Engineer

# Overview

Purpose

DAB+ Data Content

Integration

# Purpose

Enhance the  
Stations Image

Engage with the  
listener



# DAB+ Data Content



Text Messages (DLS)

Slideshow

Electronic Programme Guide

# Text Labels

Simple and effective

128 characters per message

Almost all DAB+ receivers can display DLS

Good receivers display whole message so consumers can read these quickly

Text Labels are not synced with audio

DLS+ is a more advance version of DLS



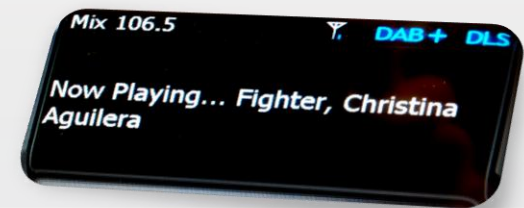
# Enhance Stations Image – Engage with listeners

Song Title and Artist

Current Program Information,  
Station slogans

Additional Information –  
Weather, Traffic, Racing  
results, News

Competitions, URLs



# More Advance Labels

Able to store information on receivers

No need to wait for important information

User's pick what they want

# Electronic Program Guide

Useful tool for promotion of programs, talent, content

Currently only used by some broadcasters.





# Examples of EPG on a receiver



# Slideshow



Add visual element to radio adverts

Standalone advertising during music or spoken content items

Station Branding

Information – eg Traffic and weather reports

Race / betting and stock market information

Local news, happenings, community events



# Enhance Station Image – Engage with listeners



**Now Playing On 2DayFM**

**Now Playing**  
**S&M**  
Rihanna



**Next Song**  
What Goes Around Comes Around  
Justin Timberlake

[2dayfm.com.au](http://2dayfm.com.au)



Latest Weather **THE EDGE**  
LIVE WEATHER



**13°**

Today's Forecast  
Wed, 1st Jan  
Sunny.

H: 19°

THU	FRI	SAT	SUN	MON
 19°	 17°	 15°	 15°	 13°

 It's radio as you know it, plus...



Select RADAR on your  
**Digital Radio**  
to hear the best new music now.

**NOW PLAYING**  
Beautiful In My Eyes  
By: Joshua Kadison



**koffee**  
time to chill

**NEXT UP**  
Madworld  
By: Michael Andrews Feat. Gary Jules



**GOLD'S GONE MOBILE.**  
GET THE FREE APP FOR IPHONE,  
ANDROID & NOKIA.





# Enhance Station Image – Engage with listeners



Australian Government  
Bureau of Meteorology

**SEVERE THUNDERSTORM WARNING - MELBOURNE AREA for LARGE HAILSTONES**

For people in parts of the Western, Geelong and Bellarine Peninsula and Port Phillip Local Warning Areas



**2GB**

**RAY HADLEY**  
WEEKDAYS  
From 10am to 1pm AEST

**SYDNEY'S AIR QUALITY**

Pollution Level

Region	Pollution I	RPI
Sydney		
Central East	Low	12
North West	Low	9
South West	Low	11

LOW: pollution index from 0 to 24  
MEDIUM: pollution index from 25 to 49  
HIGH: pollution index 50 or higher

<http://www.environment.nsw.gov.au>

# DAB+ Slideshow on receivers



# Animated Slideshow (APNG)

The DAB/DAB+ Slideshow specification supports JPEG, PNG and APNG images.

APNG is used to provide simple animations



Radarr Radio.  
Breaking new sound.



[radarradio.com.au](http://radarradio.com.au)

GET ON IT

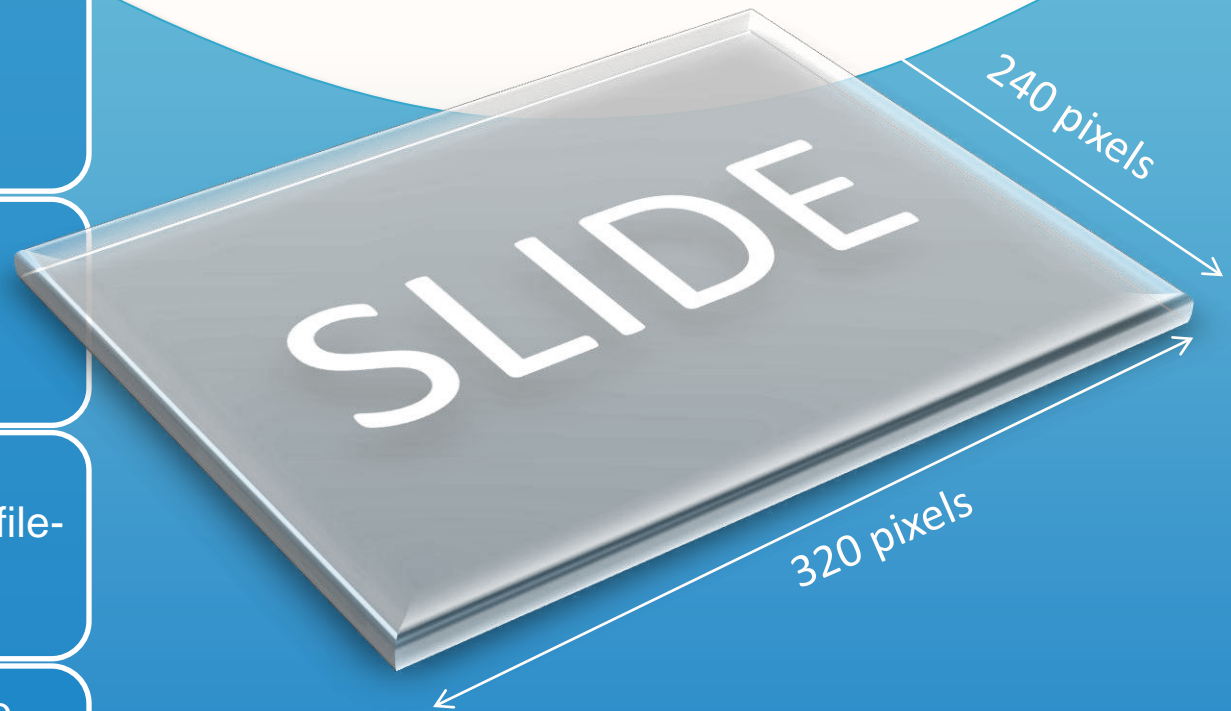
# Dimensions

320 pixels wide

240 pixels high

Ideally less than 23 kilobytes file-size

Guideline Document Issued to Australian Broadcasters that recommend following this standard



# DAB+ Specification Allows Slideshow Development

## JPEG

Mature technology

Wide support

Easy implementation

Does not support animation

Great for still images

Perfect for Photographs

## PNG/APNG

Very good support

Valid MIME type

Very efficient animation capabilities

Great for simple animations

Perfect for text / line graphics



# Slideshow Implementation Issues



This is an example text. Go ahead and replace it with your own text.

CRA recommends that it is best to maintain standardised formatting across the radio stations

The slideshow spec highly recommends “landscape” orientation of slides

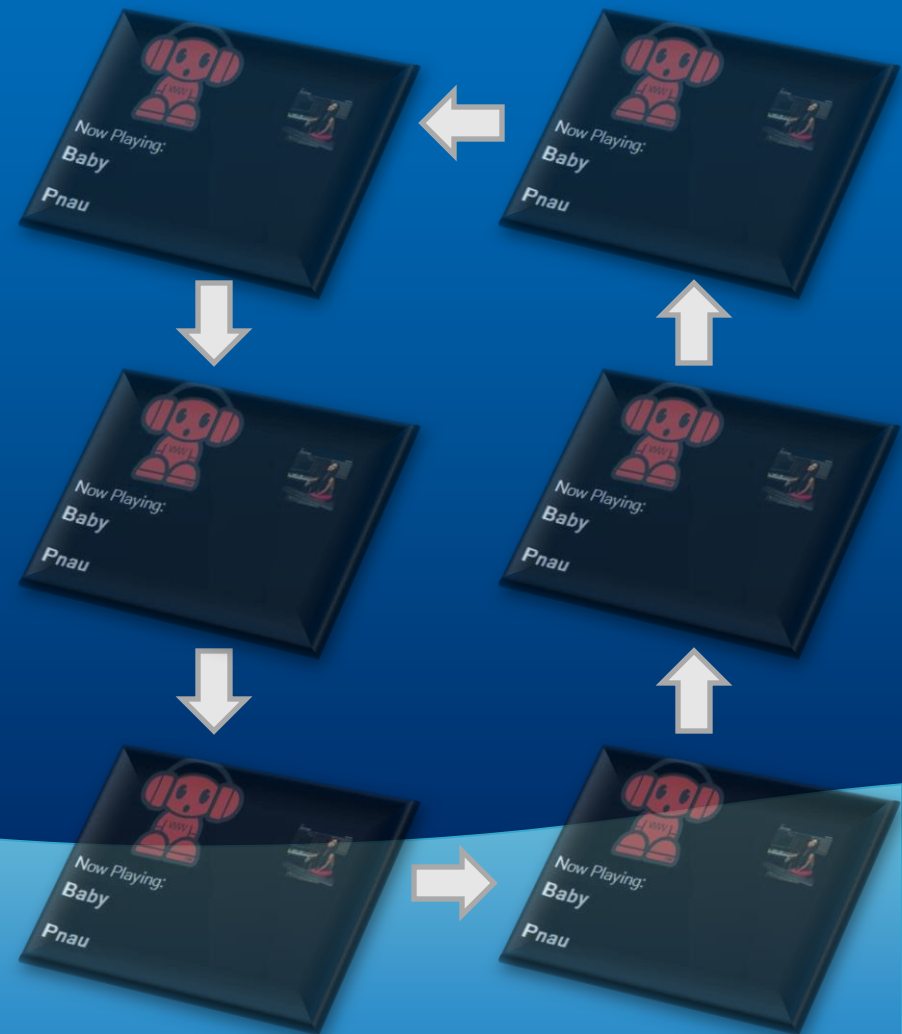
This will ease technical uncertainties when manufacturers implement slideshow on receivers

# Key Points

Needs to be a constant stream of slides to make things interesting

Just one slide can make things appear too static

Example: Track now playing and album cover information



# Carousels

We've found the best solution is to have a carousel of constantly rotating slides

Constant stream of information

In the example of the album cover, it becomes one of the slides inserted into that carousel.

Ensures repetition of "new" slides all the time including fillers and advertising content even when the updates stop



Integration

Integration

# Station Content

Is always Dynamic, Always Changing

Themed

Presents a message

# Updating Data Content

Relying on manual updates – not the best way to go – often gets forgotten

Content gets stale, user experience diminishes, technology gets rubbished



# Updating Data Content

The process HAS to be automated

Ensure constant stream of PAD data

Keeps content fresh and ever changing – users know there will always be something new when they look at their screen

For this, some sort of automation / content management software is required

# Current Scheduler Considerations

Often no need to invest in new playout system

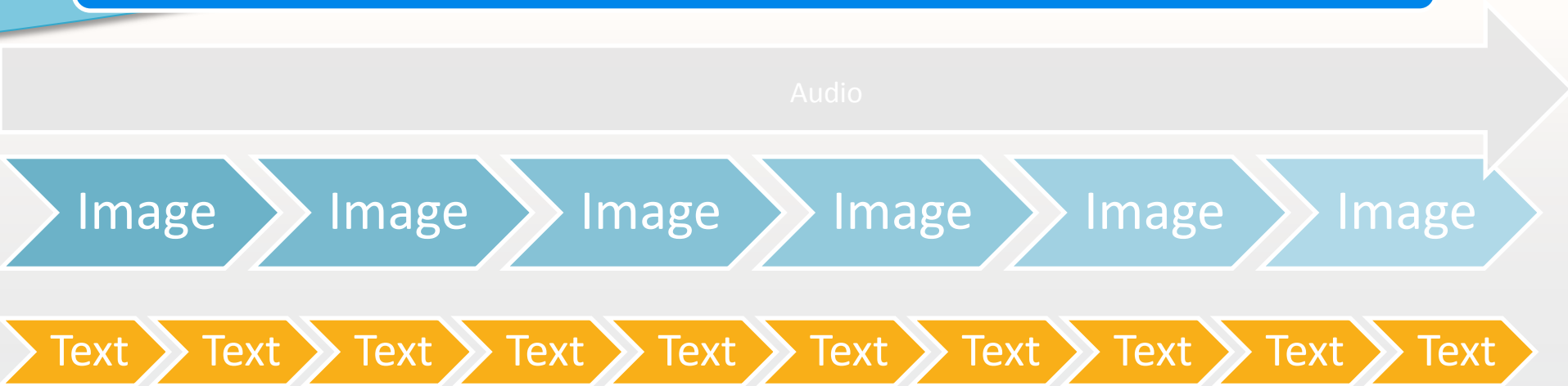
Multiplexer systems and playout systems vary in terms of data interfaces

There will need to be some sort of interfacing “PAD Server” software in the middle – take content and triggers from playout, send to DAB+ data servers



# Other Scheduler Considerations

Using Trigger: NOW



Receiver displays the data as soon as it receives it.

Ideal for News and talk type stations where they require audio and program associated data to be synced

Requires more bandwidth from the audio service which will reduce the quality of audio

# Other Scheduler Considerations

## Using Trigger: Time

AD Audio

SONG Audio

TALK Audio

SONG Image

AD Audio

AD Image

SONG Image

TALK Image

SONG Image

AD Image

AD Text

SONG Text

TALK Text

SONG Text

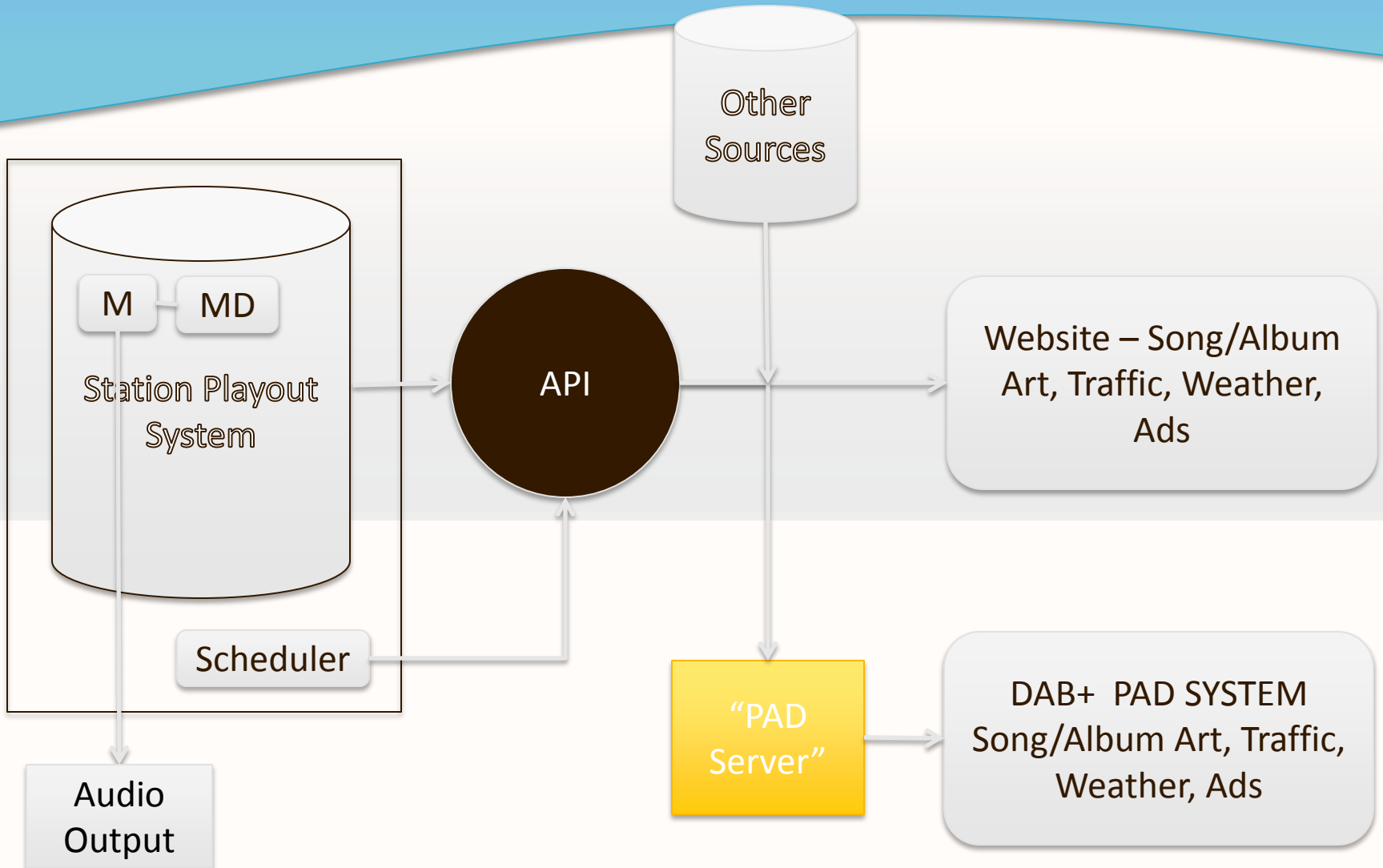
AD Text

DAB+ Broadcasts all images throughout the day and the receiver does not display until it is triggered by the DAB ensemble time.

Ideal for segments that can be reinforced by Images and text

Lower bandwidth for data is required as images are sent before hand.

# Scheduler System Layout



# Studio Play-out System

Song Title

Artist Title

Album Art

Traffic (some)

“PAD Server”

DLS TEXT INFORMATION  
SLIDESHOW IMAGE

# Other Sources

Weather Information

Advertisement

News Items

Emergencies

PAD Server

DLS TEXT INFORMATION  
SLIDESHOW IMAGE

# Using Website content

The screenshot shows the Mix 106.5 website interface. At the top, there's a navigation bar with links: HOME, SHOWS, LISTEN, VIDEOS, PHOTOS, WIN, WHAT'S ON, MUSIC, ENTERTAINMENT & LIFESTYLE, ABOUT US. The main content area features a 'Win' section with a large banner and a list of competitions. On the right, there's a 'SYDNEY WEATHER' widget and a 'LATEST FROM MIX 106.5' section. The 'Win' section includes a 'FOREVER DIAMONDS' competition, a 'Revesby Workers 50th GOLD PARTY WEEK' competition, and a 'Travel Secrets' promotion. The weather widget shows a high of 19°C on Wednesday. The 'LATEST FROM MIX 106.5' section features a 'The Latest Traffic' video player.

Find the #Mix1065 Street Team 11:55am this morning at Adairs, Westfield Penrith ... <http://t.co/v243WynF>

LISTEN TO MIX 106.5

NOW PLAYING  
Set It Off  
Timomatic

ON DEMAND  
Catch Up with all our shows on demand below.  
PODCASTS  
VIDEOS

SITE SEARCH  
Keyword

CONNECT WITH US  
f t i

Follow @Mix106FIVE

WIN

## Win

WIN with Mix 106.5! Check out our current competitions below and enter for your chance to win!

Share | | | | |

**FOREVER DIAMONDS**  
Win A Necklace For Your Loved One!

**revesbyworkers**  
**50<sup>th</sup> GOLD PARTY WEEK**  
Win \$5000 at The Revesby Workers Club

**SYDNEY WEATHER**  
19°C Wednesday  
Mostly sunny.  
H:23°  
More Weather

**LATEST FROM MIX 106.5**  
The Latest Traffic

ENTER NOW FOR YOUR CHANCE TO WIN!

**FOREVER DIAMONDS**  
Win A Necklace For Your Loved One!  
▶ ENTER NOW

**revesbyworkers**  
**50<sup>th</sup> GOLD PARTY WEEK**  
Win \$5000 at The Revesby Workers Club  
▶ ENTER NOW

**Travel Secrets**  
Mix106.5's Travel Secrets!  
▶ ENTER NOW

**Dreamworks Madagascar 3: Europe's Most Wanted**  
▶ ENTER NOW

**Mix 106.5**  
WIN IN AND WIN

**JOIN THE**  
mix Review Crew

**WHAT DO YOU**

# What can be used from the Website?



Made for You  
for people watching their blood sugar

Beef Lasagne

- ✓ Low GI
- ✓ Low fat
- ✓ 5 meal options
- ✓ Carb and portion controlled
- ✓ Plenty of vegies and fibre
- ✓ Tastes great!

300

250



Made for You  
for people watching their blood sugar

Beef Lasagne

- ✓ Low GI
- ✓ Low fat
- ✓ 5 meal options
- ✓ Carb and portion controlled
- ✓ Plenty of vegies and fibre
- ✓ Tastes great!

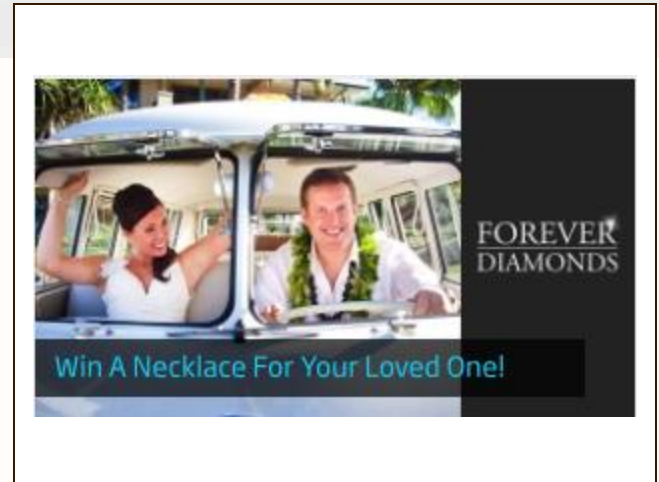


FOREVER DIAMONDS

Win A Necklace For Your Loved One!

300

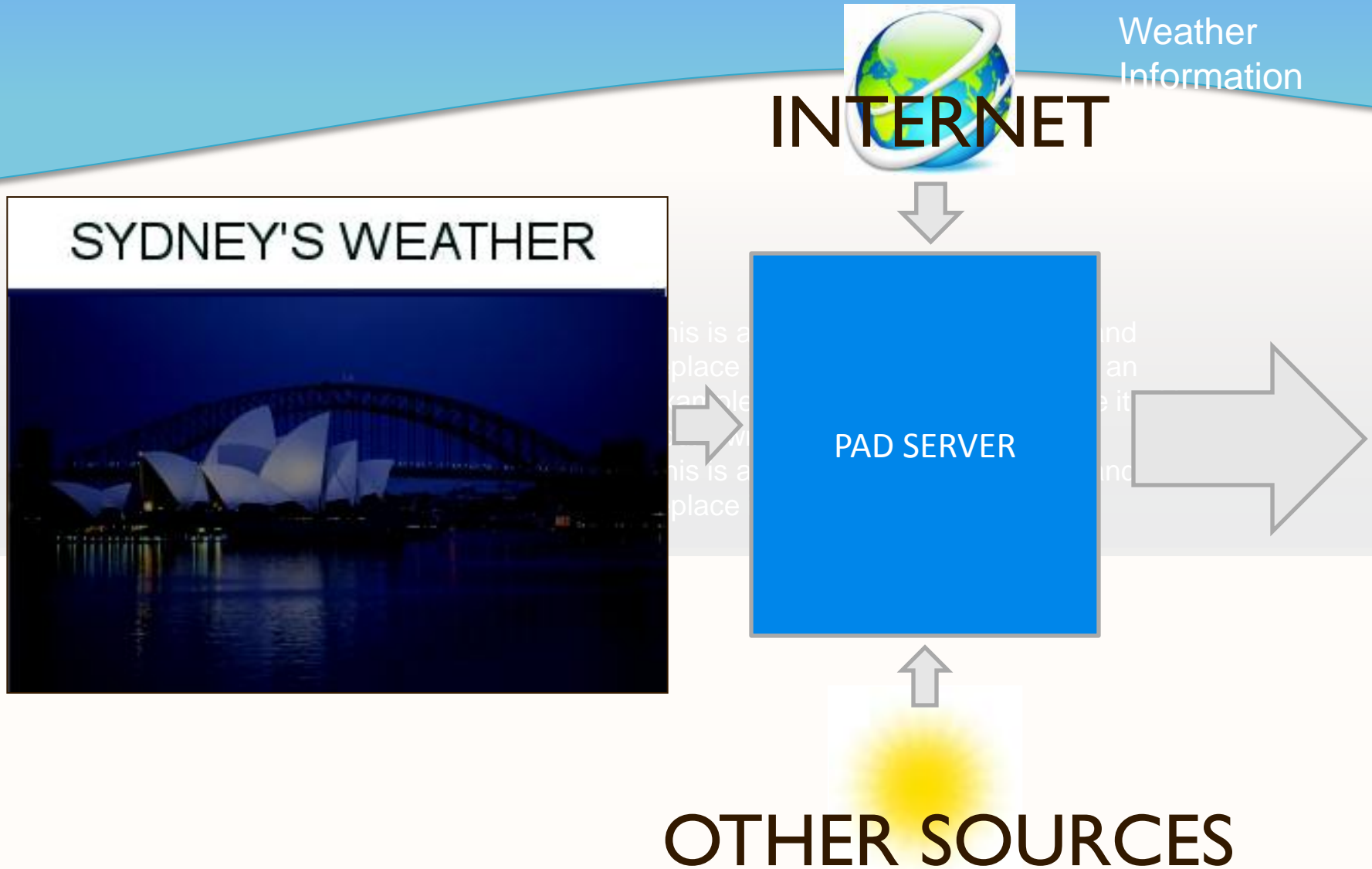
170



FOREVER DIAMONDS

Win A Necklace For Your Loved One!

# Sample: Generating Dynamic Slideshow





# Sample: Generating Dynamic Slideshow

SYDNEY'S WEATHER

fine. mostly sunny.



	NOW	MAX	HUM
CITY	24.4°C	27°C	53%
WEST	23.9°C	29°C	71%

Thu Apr 08 09:52:51 EST 2010 [www.bom.gov.au](http://www.bom.gov.au)

2

land  
is an  
ce it with

land

# Examples

Australian Government  
Bureau of Meteorology

HOME | ABOUT | CONTACTS Search

NSW VIC QLD WA SA TAS ACT NT AUSTRALIA GLOBAL ANTARCTICA

Bureau Home > Radar Images > 128 km Darwin (Berrimah) Radar Loop

## 128 km Darwin (Berrimah) Radar Loop

Current weather warnings for Northern Territory

Loops: Radar 64 km, 128 km, 256 km, 512 km composite, National, Doppler wind

Copyright: Image by Bureau of Meteorology. For related Warnings, see [www.bom.gov.au](http://www.bom.gov.au)

Frame: 1  
15:05 CST  
21/9/2012

Weather Observations  
Check the "Weather observations" checkbox under "Map Features" to view weather observations data here.

Map Features

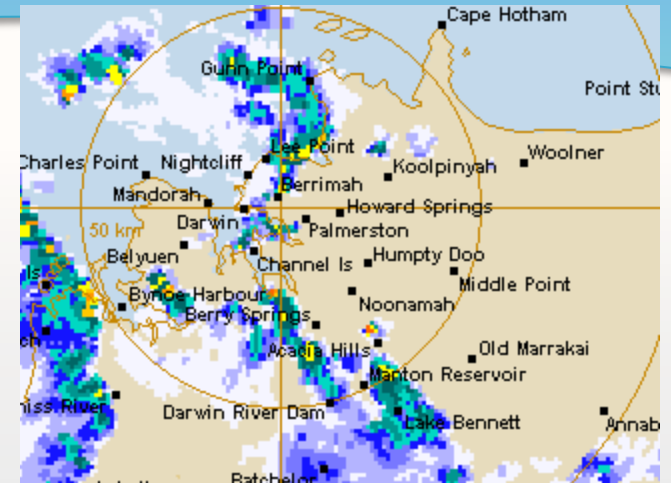
- Weather observations
- Locations
- Range
- Topography
- Lakes & major rivers
- River catchments
- Forecast districts
- Roads
- Railways

To display additional map features, select listed options

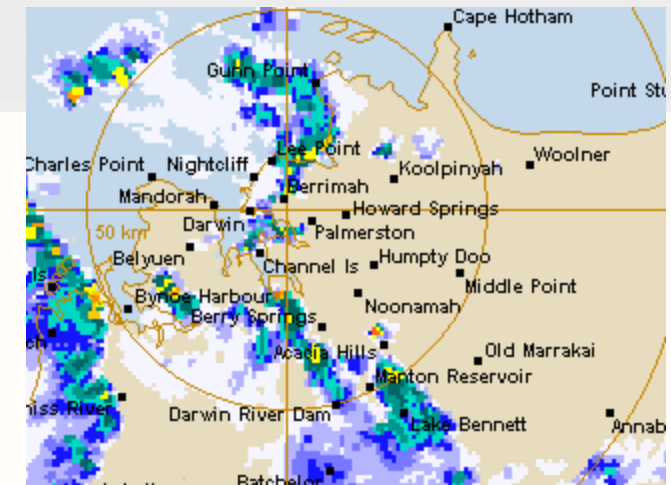
Pointer data

Pointer	Map Coordinates	Origin
125 km West	13 deg 34 min S	0 km East
122 km South	129 deg 46 min E	0 km North
175 km Away	<input checked="" type="radio"/> Degrees & Minutes	<input type="button" value="Rst."/>

Rain Rate: Light Moderate Heavy



APNG Animation



Single Frame

# Examples

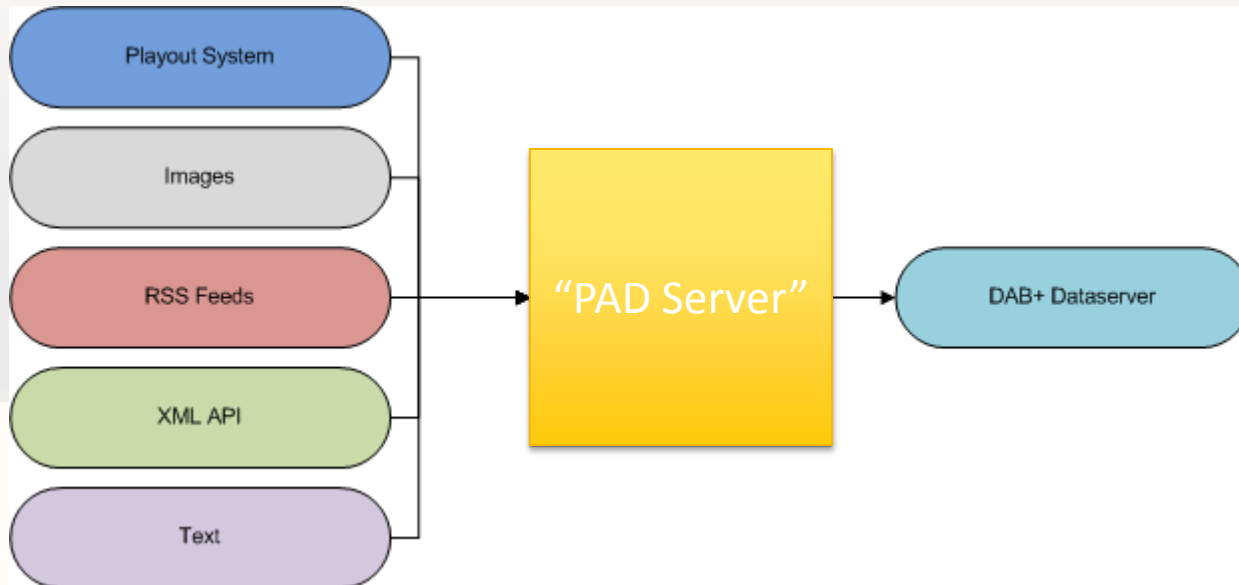
The screenshot shows the 'Live Traffic NSW' website. At the top left is a logo with a truck and the text 'Live Traffic NSW' and 'Live updates and traveller information for NSW roads.' To the right is the 'Transport for NSW' logo. Below the header is a navigation bar with 'Map View', 'Text View', 'Traffic Cameras', 'Major Events', and 'Help'. A yellow banner at the top of the map area reads 'HAZARD REDUCTION BURN - HELENSBURGH Garawarra State Conservation Area - SMOKE IN THE AREA'. Below this is a 'Quick Find' search box. The main map area shows a map of Sydney with various traffic icons. A 'Live traffic camera' window is open, showing a video feed of the Sydney Harbour Bridge deck. The video feed has a timestamp '21.Sep 2012 16:54:22' and a 'REFRESH' button. Below the video feed, it says 'View: Sydney Harbour Bridge deck looking south towards the Sydney CBD.' and 'New images are available approximately every 60 seconds.' To the right of the map is a sidebar with sections: 'My journey' (with search boxes for start and end points), 'Traffic hazards' (with a list of hazards like Incidents, Fire, Flood, etc.), 'Other events and roadworks', 'Map options', 'Traffic conditions', 'Travel times', 'Public transport', and 'Heavy vehicles'. At the bottom left, it says 'Auto refresh (last refreshed at 4:57pm)'.



# Examples: Adding interactivity



# In Summary for Integration



PAD Server Software

# Providers

## SOFTWARE PROVIDED BY MULTIPLEXER



## SPECIALISED

uniqueinteractive



ANY QUESTIONS?

