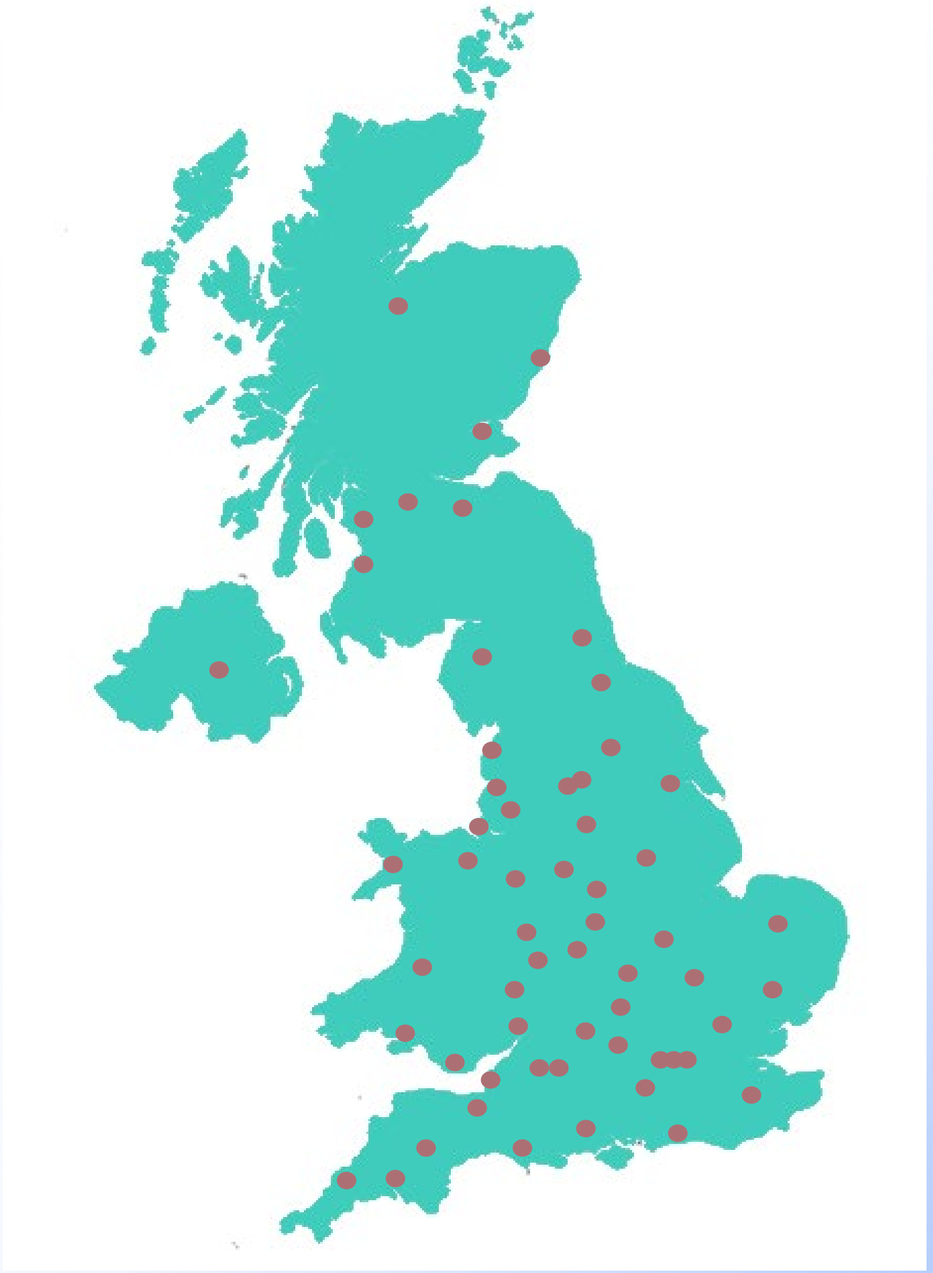
Probably the largest mux and encoder migration in the world

Richard Johnston

19th November

WorldDAB

Scale of the project



- 2x National DAB Multiplexes
- 60x Local or Regional DAB Multiplexes

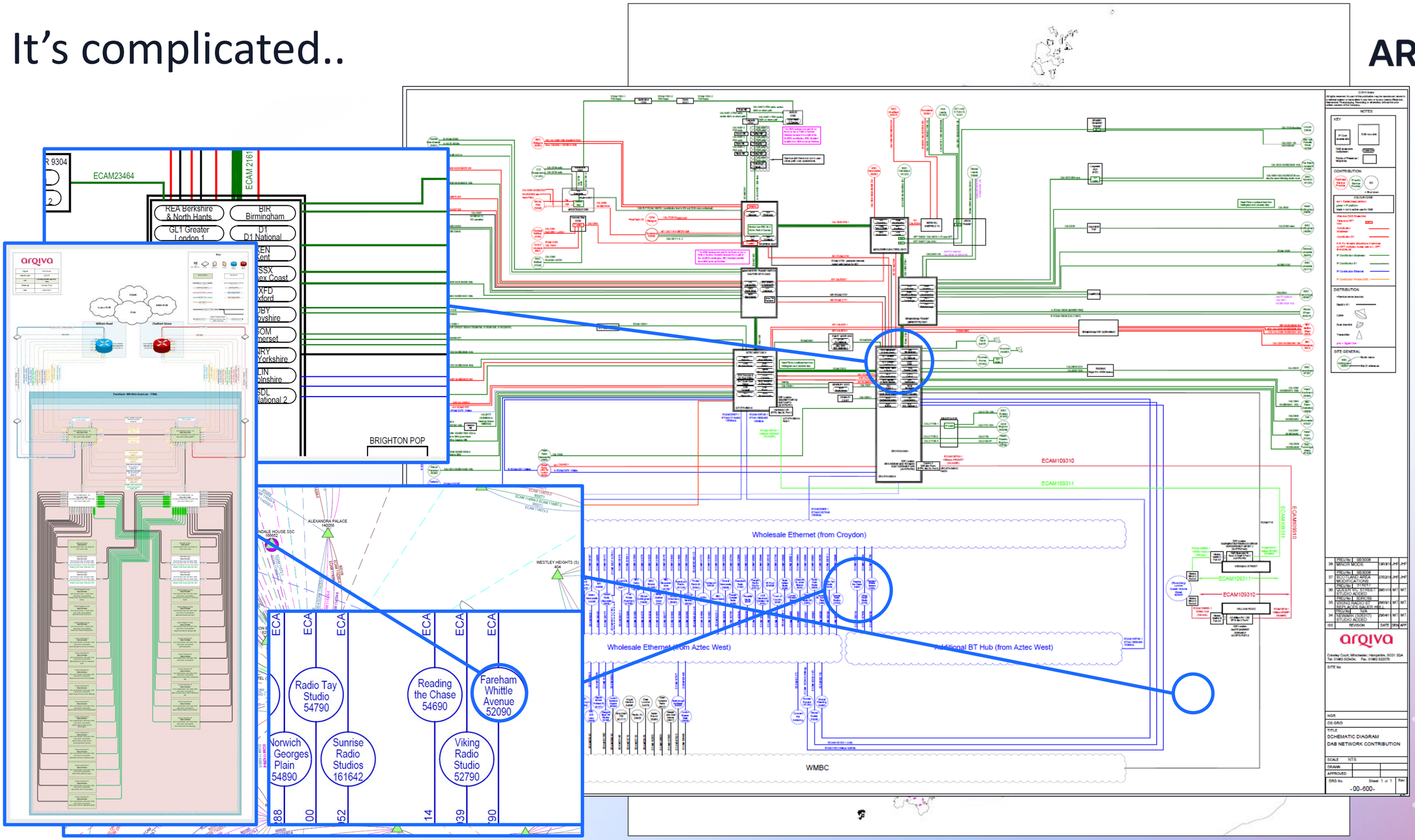
Gathering ***430 unique audio sources***

Broadcasting ***700 audio services***

Transmitting from ***745 DAB transmitters***

It’s complicated..

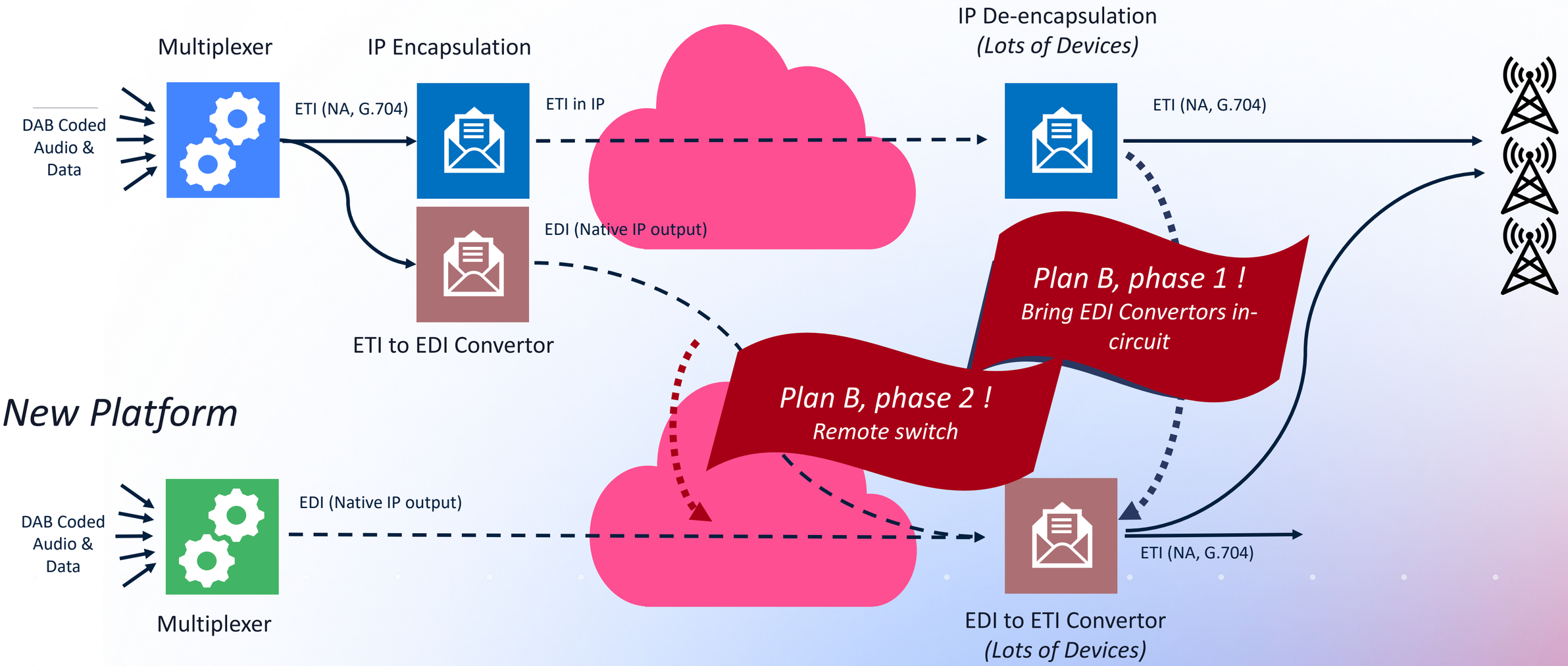
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Distribution Challenge

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Existing Platform



Big red button



```
1 reference
public List<string> GetSourceIdList()
{
    List<string> sourceIdList = new List<string>();
    string sourceDropDownList = Element.GetParameterDisplay((int)EdicParameter.SourceDropDownList);
    if (sourceDropDownList != "Not initialized")
    {
        string[] sourceList = sourceDropDownList.Split(';');
        foreach (string source in sourceList)
        {
            string key = source.Split('|').Last().Trim();
            string idx = KeyToSourceIdx(key);
            sourceIdList.Add(idx);
        }
    }
    return sourceIdList;
}

// Check whether Edic element is in Timeout
1 reference
public bool InTimeout()
{
    string alarmState = Element.GetParameterDisplay((int)EdicParameter.ElementAlarmState);
    return (alarmState == "Timeout");
}

// Set main source ID on Edic
2 references
public void SetMainSourceId(string idx)
{
    string key = SourceIdxToKey(idx);
    Element.SetParameterByPrimaryKey((int)EdicParameter.SetMainSource, Converter, key);
}

// Set backup source ID on Edic
2 references
public void SetBackupSourceId(string idx)
{
    string key = SourceIdxToKey(idx);
    Element.SetParameterByPrimaryKey((int)EdicParameter.SetBackupSource,
}

// Force Edic to main source
3 references
public void EnableMainSource()
{
    Element.SetParameterByPrimaryKey((int)EdicParameter.SetMainState, Con
    Element.SetParameterByPrimaryKey((int)EdicParameter.SetBackupState, C
    Element.SetParameterByPrimaryKey((int)EdicParameter.SetActivationComm
    Element.SetParameter((int)EdicParameter.SourceAssignmentChanged, "1")
```

D1 National Mux - Distribution

2 Masked

Mux/DR | Migrate

Bluebell Hill	EDIC: bbl-edic-1	Converter: 3	Mux: D1 National CCMS (IP EDI) DR: D1 National CCMS DR (IP EDI)
Bluebell Hill(S)	EDIC: bbs-edic-2	Converter: 3	Mux: D1 National CCMS (IP EDI) DR: D1 National CCMS DR (IP EDI)
Bromsgrove	EDIC: bge-edic-1	Converter: 2	Mux: D1 National CCMS (IP EDI) DR: D1 National CCMS DR (IP EDI)
Chalfont [Uplink]	EDIC: cnt-edic-3	Converter: 1	Mux: D1 National CCMS (IP EDI) DR: D1 National CCMS DR (IP EDI)
Chalfont [Uplink]	EDIC: cnt-edic-4	Converter: 1	Mux: D1 National CCMS (IP EDI) DR: D1 National CCMS DR (IP EDI)
Colchester	EDIC: ccd-edic-1	Converter: 2	Mux: D1 National CCMS (IP EDI) DR: D1 National CCMS DR (IP EDI)
Crawley Court	EDIC: crw-edic-1	Converter: 4	Mux: D1 National CCMS (IP EDI) DR: D1 National CCMS DR (IP EDI)
Crawley Court	EDIC: crw-edic-2	Converter: 4	Mux: D1 National CCMS (IP EDI) DR: D1 National CCMS DR (IP EDI)
Crockerton	EDIC: crk-edic-1	Converter: 1	Mux: D1 National CCMS (IP EDI) DR: D1 National CCMS DR (IP EDI)
Croydon	EDIC: crn-edic-1	Converter: 2	Mux: D1 National CCMS (IP EDI) DR: D1 National CCMS DR (IP EDI)
Croydon			Mux: D1 National CCMS (IP EDI)

dab mux distribution migrate

D1 National Mux ...

48 EDIC converter instances to migrate

bbl-edic-1	converter 3	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
bbs-edic-2	converter 3	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
bge-edic-1	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
ccd-edic-1	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
cnt-edic-3	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
cnt-edic-4	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
crw-edic-1	converter 4	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
crw-edic-2	converter 4	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
crk-edic-1	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
crn-edic-1	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
crn-edic-6	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
cp-edic-1	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
du-edic-1	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
dx-edic-2	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
dov-edic-1	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
dkk-edic-1	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
mlm-edic-1	converter 3	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
gi-edic-2	converter 3	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
hs-edic-1	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
hh-edic-2	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
hwr-edic-1	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
mnf-edic-2	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
mby-edic-2	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
men-edic-1	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
men-edic-2	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
moz-edic-1	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
nst-edic-3	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
nst-edic-4	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
nuts-edic-1	converter 3	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
odi-edic-1	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
of-edic-4	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
pp-edic-1	converter 3	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
ptb-edic-1	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
ptn-edic-1	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
pz-edic-1	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
pz-edic-2	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
rr-edic-1	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
sjb-edic-1	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
suy-edic-2	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
sc-edic-2	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
sc-edic-3	converter 4	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
suh-edic-1	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
tac-edic-1	converter 3	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
wbf-edic-2	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
wru-edic-1	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
wl-edic-1	converter 1	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
wrh-edic-2	converter 3	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)
wv-edic-2	converter 2	D1 National CCMS	(Mux = D1 National CCMS	DR = D1 National CCMS DR)

Do you want to migrate these to the CCMS or Legacy platform?

CCMS | Legacy | Quit

Migration Day



Final Form factor

Previously an entire rack would have been 1 mux

62 muxes per rack now



What was the result?

ARQIVA

60+ mux migrations executed with only minutes of outages, even on national muxes

50% Increase in total number of services 700 to 1061

87% reduction in power usage for the encode and mux platform (150 tonnes of CO2 per annum)

Closure of 7 sites and centralisation to 2 resilient data centres

Increased feature set for both customers and ourselves

ARQIVA

For more information please contact
Richard Johnston
Richard.johnston@arqiva.com
07891998718