

SAM Briefing



Federal Aviation
Administration



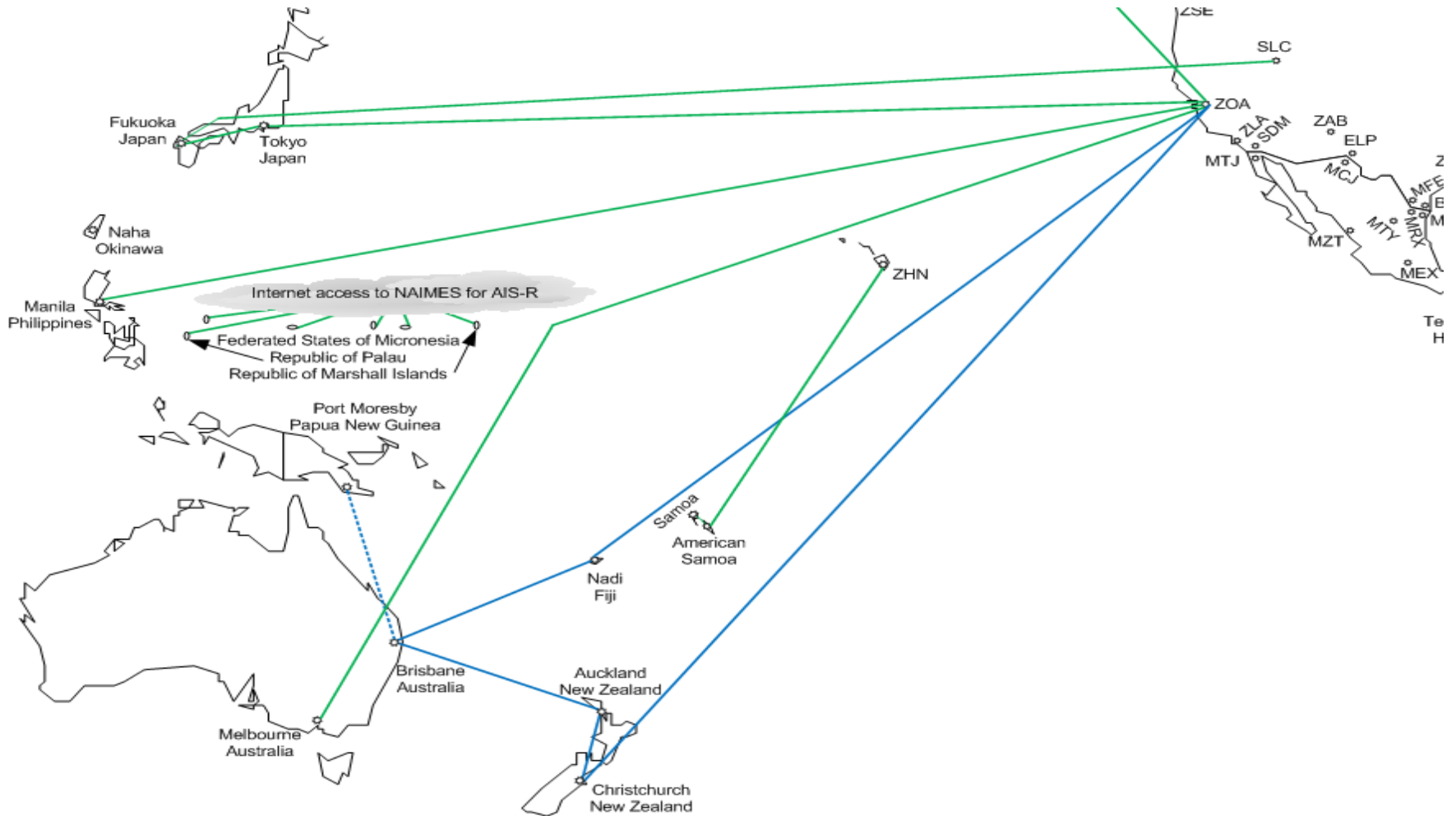
Presented by Al O' Neill

FAA International Program Office

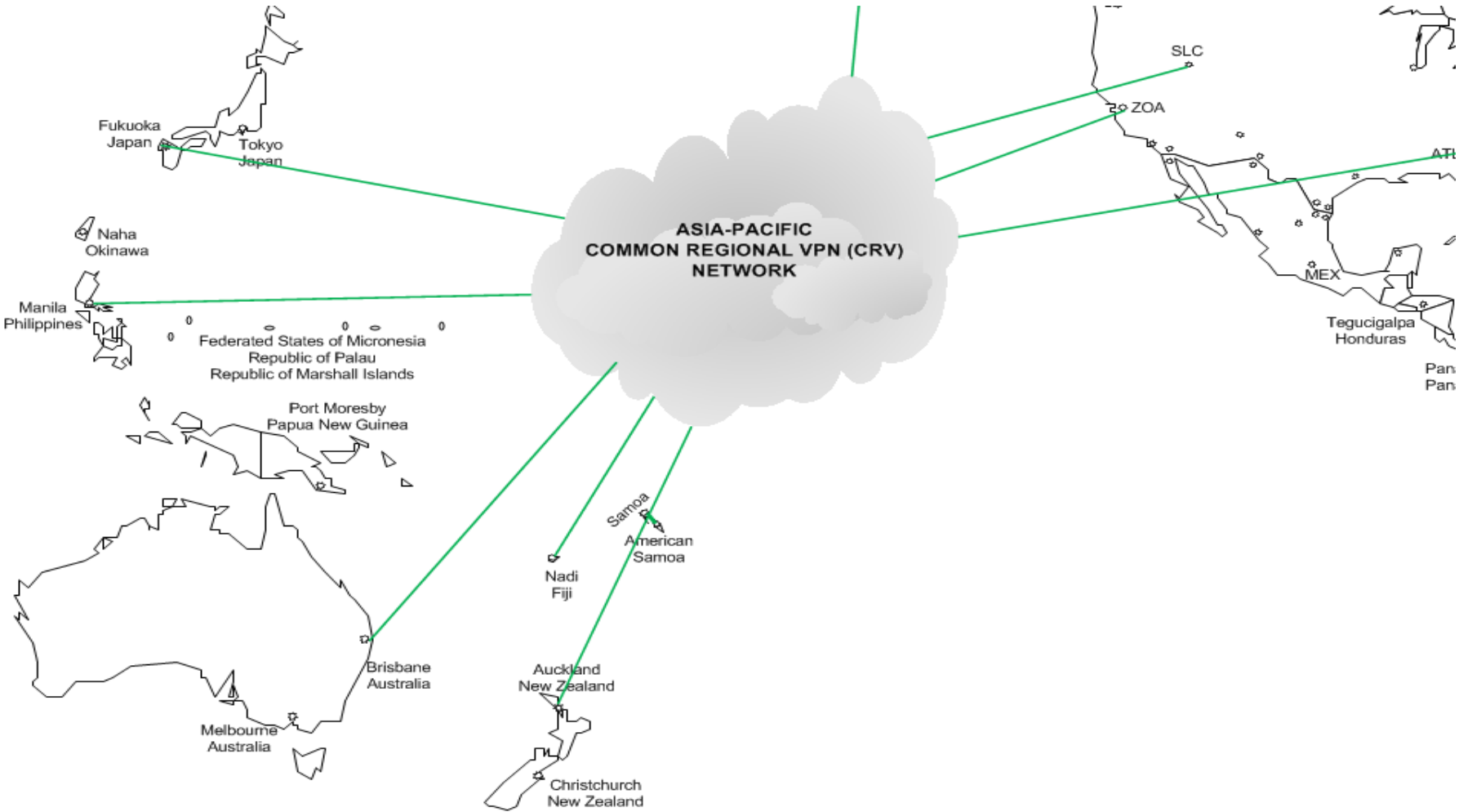
AJM-3122

March 2020

Pre-CRVV TDM Connections

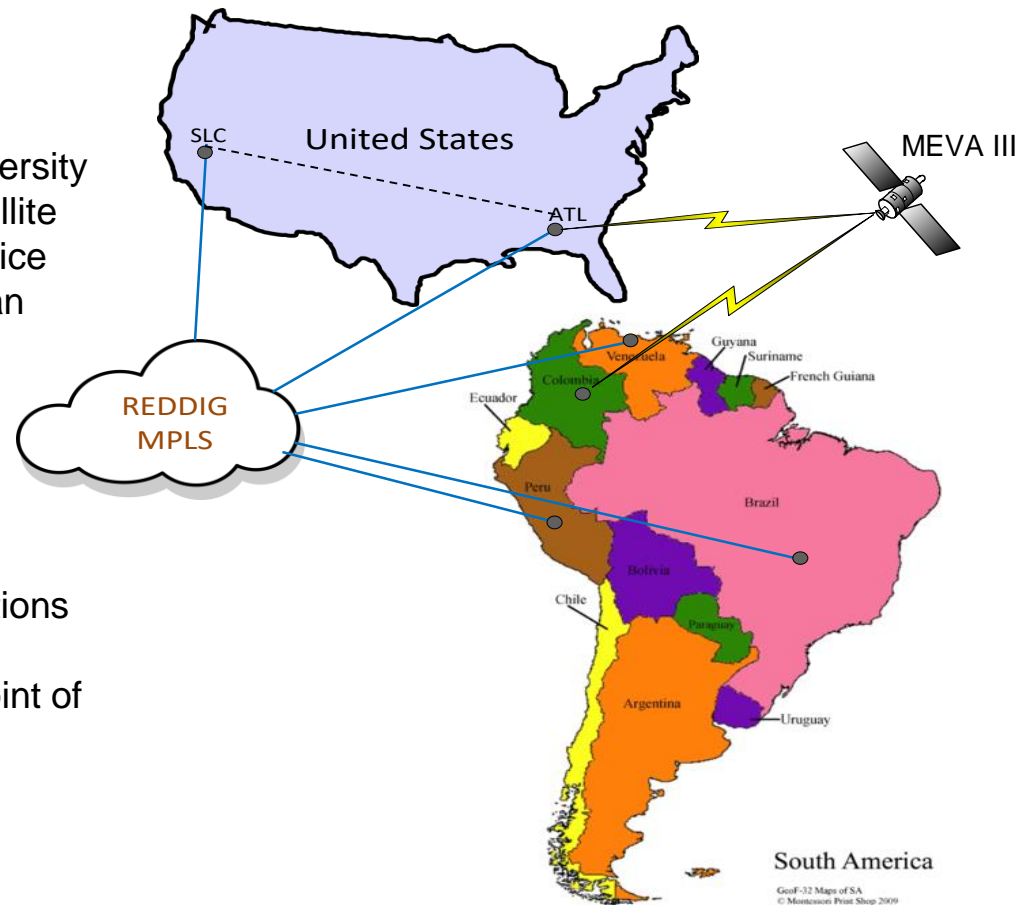


Current CRV Connections



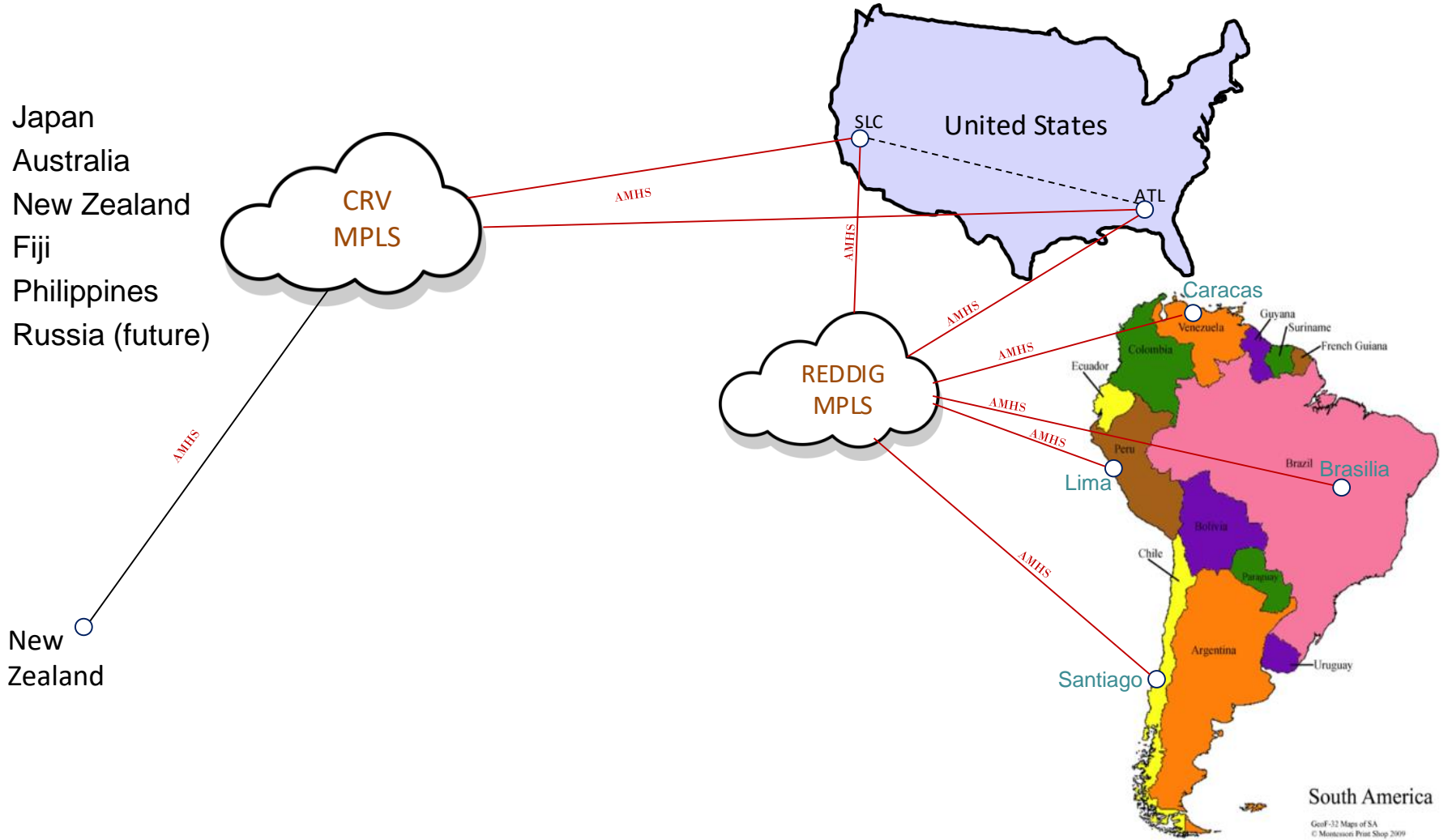
REDDIG

- ✓ Scope
 - Implementation of Carrier Ethernet connectivity from ATL and SLC to the REDDIG MPLS network to provide diversity for backup to the MEVA-REDDIG satellite interconnection for the exchange of voice and data requirements in the Caribbean and South American Region
- ✓ Issue
 - Single point of failure to reach Lima, Caracas, Brazil
- ✓ Risks
 - Consolidating Brazil and Peru connections through Columbia MEVA-REDDIG Ethernet Interconnection is a single point of failure
- ✓ Benefits
 - Increased bandwidth, 10 Megabyte connections
 - Dual connections
 - Border Gateway Protocol



CRV and REDDIG

- Japan
- Australia
- New Zealand
- Fiji
- Philippines
- Russia (future)

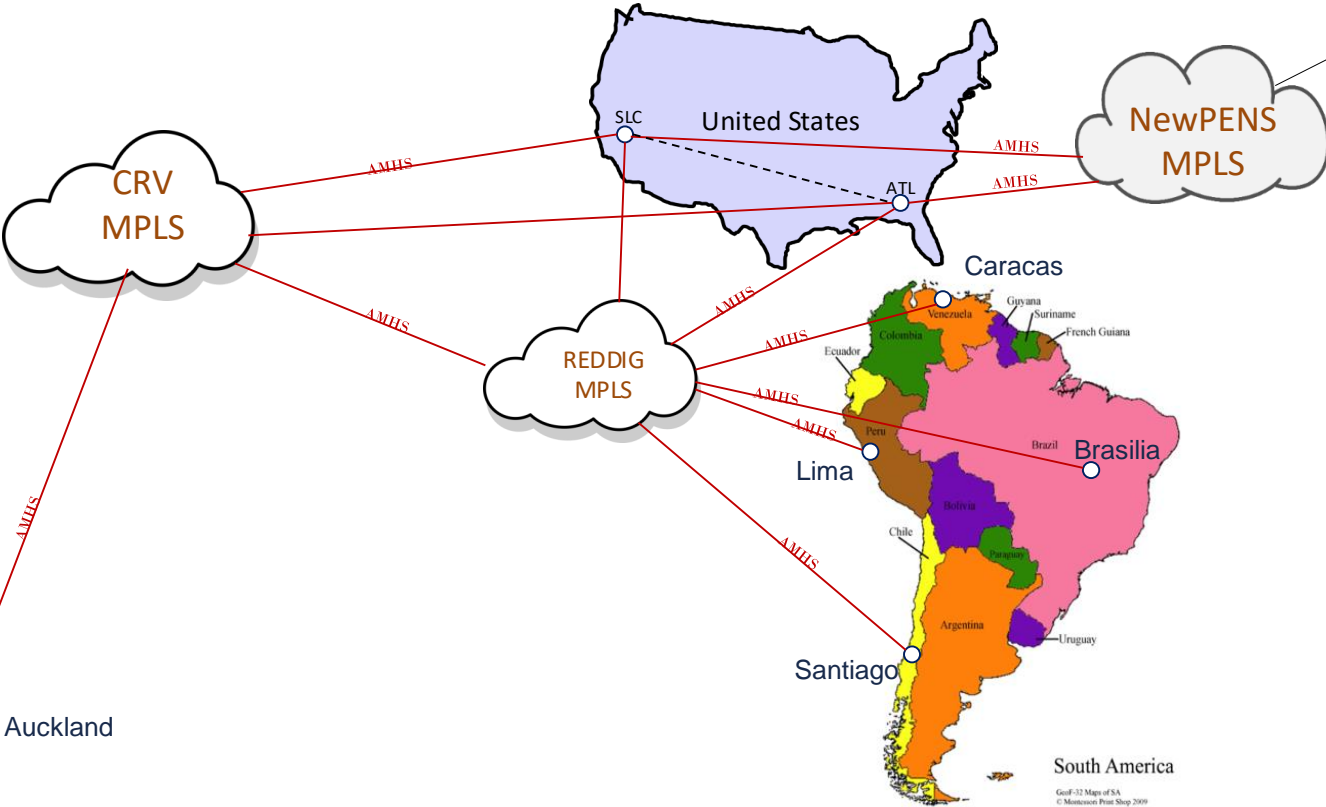


CRV, REDDIG, NewPENS

Eurocontrol

Asia Pacific

- Japan
- Australia
- Fiji
- Philippines
- Russia (future)

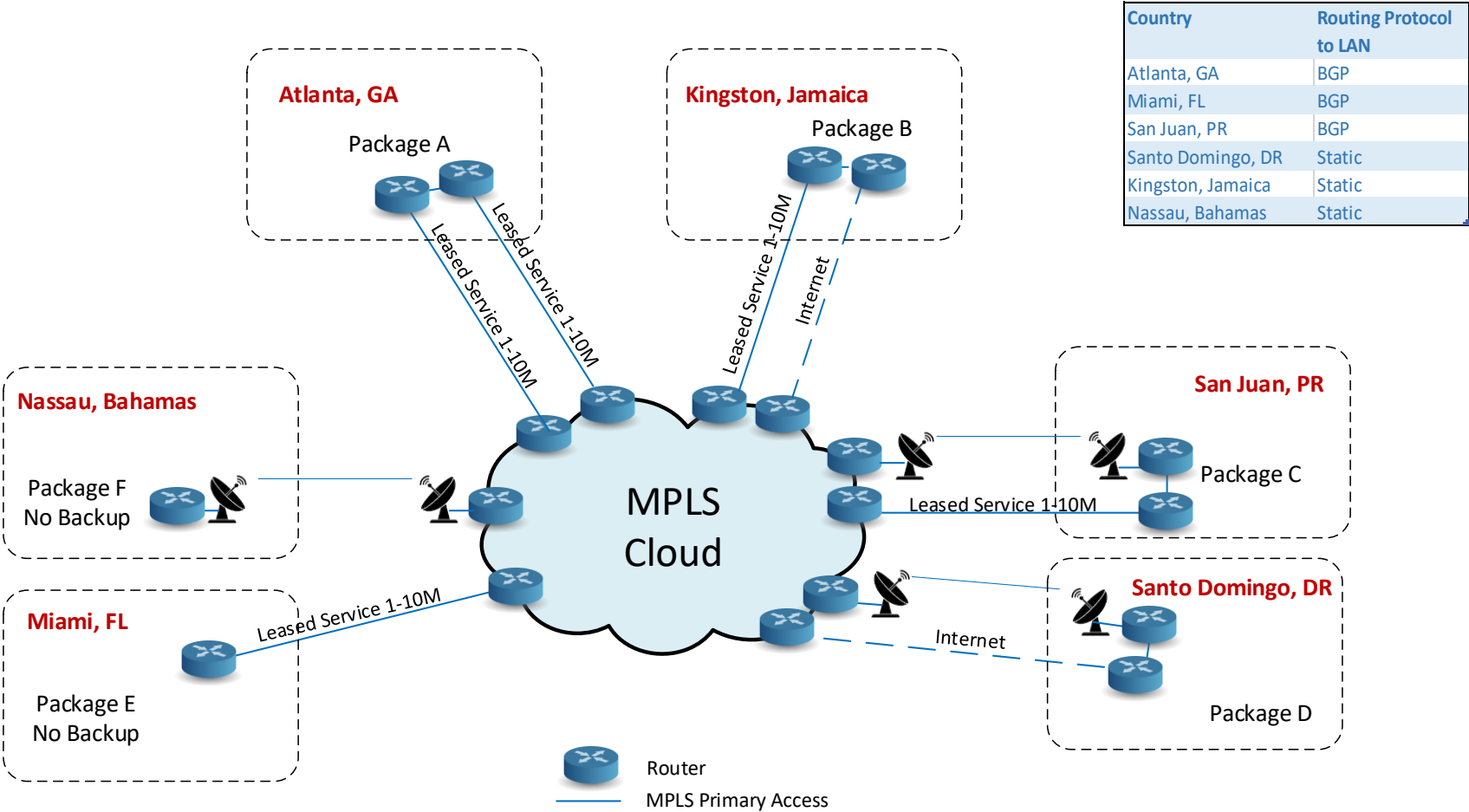


New Zealand Auckland

Geo-32 Maps of SA © Montrose Print Shop 2009



MEVA Connectivity Options Example



Country	Routing Protocol to LAN
Atlanta, GA	BGP
Miami, FL	BGP
San Juan, PR	BGP
Santo Domingo, DR	Static
Kingston, Jamaica	Static
Nassau, Bahamas	Static

METAR – TAC Format

Traditional Alphanumeric Code (TAC)

METAR YUDO 221630Z 24004MPS 0600 R12/1000U DZ FG SCT010 OVC020
17/16 Q1018 BECMG TL1700 0800 FG BECMG AT1800 9999 NSW

METAR – IWXXM Format

IWXXM

```
<iwxxm:METARxmlns:iwxxm="http://icao.int/iwxxm/1.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml/3.2" xmlns:om="http://www.opengis.net/om/2.0"
xmlns:metce="http://def.wmo.int/metce/2013"
xmlns:sams="http://www.opengis.net/samplingSpatial/2.0"
xmlns:sf="http://www.opengis.net/sampling/2.0"
xmlns:saf="http://icao.int/saf/1.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://icao.int/iwxxm/1.0 http://schemas.wmo.int/iwxxm/1.0/iwxxm.xsd
http://def.wmo.int/metce/2013 http://schemas.wmo.int/metce/1.0/metce.xsd"
gml:id="metar-YUDO-20120822163000Z"
status="NORMAL"
automatedStation="false">
<iwxxm:observation>
<om:OM_Observationgml:id="obs-03839-20120824T12Z">
<om:typexlink:href="http://codes.wmo.int/49-2/observation-type/IWXXM/1.0/MeteorologicalAerodromeObservation" xlink:title="Aerodrome
Observation"/>
<!--time at which the observation actually occurred-->
<om:phenomenonTime>
<gml:TimeInstantgml:id="ti-201208221630Z">
<gml:timePosition>2012-08-22T16:30:00Z</gml:timePosition>
</gml:TimeInstant>
</om:phenomenonTime>
<!--time at which the results of the observation were made available (10-minutes later) -->
<om:resultTime>
<gml:TimeInstantgml:id="ti-201208221640Z">
<gml:timePosition>2012-08-22T16:40:00Z</gml:timePosition>
</gml:TimeInstant>
</om:resultTime>
<om:procedure>
<metce:Processgml:id="p-49-2-metar">
<gml:description>WMO No. 49 Volume 2 Meteorological Service for International Air Navigation APPENDIX 3 TECHNICAL
SPECIFICATIONS RELATED TO METEOROLOGICAL OBSERVATIONS AND REPORTS</gml:description>
```

METAR – IWXXM Format

```
</metce:Process>
</om:procedure>
<om:observedPropertyxlink:href="http://codes.wmo.int/49-2/observable-property/MeteorologicalAerodromeObservation" xlink:title="Observed properties for METAR and SPECI (Meteorological Aerodrome Reports)"/>
<om:featureOfInterest>
<!--featureOfInteresttype and shape must refer to a point -->
<sams:SF_SpatialSamplingFeaturegml:id="sampling-point-03839">
<sf:typexlink:href="http://www.opengis.net/def/samplingFeatureType/OGC-OM/2.0/SF_SamplingPoint" xlink:title="SF_SamplingPoint"/>
<sf:sampledFeature>
<!--The aerodrome at which this observation took place -->
<saf:Aerodromegml:id="uuid.dd062d88-3e64-4a5d-bebd-89476db9ebea">
<gml:identifiercodeSpace="urn:uuid:">dd062d88-3e64-4a5d-bebd-89476db9ebea</gml:identifier>
<saf:designator>YUDO</saf:designator>
<saf:name>DONLON/INTERNATIONAL</saf:name>
<saf:locationIndicatorICAO>YUDO</saf:locationIndicatorICAO>
<saf:ARP>
<gml:Pointgml:id="pt52284-32035" srsName="http://www.opengis.net/def/crs/EPSSG/0/4326">
<gml:pos>12.34 -12.34</gml:pos>
</gml:Point>
</saf:ARP>
</saf:Aerodrome>
</sf:sampledFeature>
<sams:shape>
<!--This is where the observation took place, assumed to be representative of the entire aerodrome -->
<gml:Pointgml:id="point-5225-3201" srsDimension="2" srsName="http://www.opengis.net/def/crs/EPSSG/0/4326">
<gml:pos>12.34 -12.34</gml:pos>
</gml:Point>
</sams:shape>
</sams:SF_SpatialSamplingFeature>
</om:featureOfInterest>
<!--The result of the observation -->
<om:result>
<iwxxm:MeteorologicalAerodromeObservationRecordgml:id="or1" cloudAndVisibilityOK="false">
<iwxxm:airTemperatureuom="Cel">17.0</iwxxm:airTemperature>
<iwxxm:dewpointTemperatureuom="Cel">16.0</iwxxm:dewpointTemperature>
<iwxxm:qnhuom="hPa">1018</iwxxm:qnh>
<iwxxm:surfaceWind>
<iwxxm:AerodromeSurfaceWindvariableDirection="false">
<iwxxm:meanWindDirectionuom="deg">240</iwxxm:meanWindDirection>
<iwxxm:meanWindSpeeduom="m/s">4.0</iwxxm:meanWindSpeed>
```

METAR – IWXXM Format

```
</iwxxm:AerodromeSurfaceWind>
</iwxxm:surfaceWind>
<iwxxm:visibility>
<iwxxm:AerodromeHorizontalVisibility>
<iwxxm:prevailingVisibilityuom="m">600</iwxxm:prevailingVisibility>
</iwxxm:AerodromeHorizontalVisibility>
</iwxxm:visibility>
<iwxxm:rvr>
<iwxxm:AerodromeRunwayVisualRangepastTendency="UPWARD">
<iwxxm:runway>
<saf:RunwayDirectiongml:id="uuid.b1947d80-b7f7-11e2-9e96-0800200c9a66">
<gml:identifiercodeSpace="urn:uuid:">b1947d80-b7f7-11e2-9e96-0800200c9a66</gml:identifier>
<saf:designator>12</saf:designator>
<saf:trueBearinguom="deg">118.23</saf:trueBearing>
<saf:elevationTDZuom="m">20.5</saf:elevationTDZ>
<saf:usedRunway>
<saf:Runwaygml:id="uuid.2f864fc0-b7f8-11e2-9e96-0800200c9a66">
<gml:identifiercodeSpace="urn:uuid:">2f864fc0-b7f8-11e2-9e96-0800200c9a66</gml:identifier>
<saf:designator>12/30</saf:designator>
<saf:associatedAirportHeliportxlink:href="#uuid.dd062d88-3e64-4a5d-bebd-89476db9ebea"/>
</saf:Runway>
</saf:usedRunway>
</saf:RunwayDirection>
</iwxxm:runway>
<iwxxm:meanRVRuom="m">1000</iwxxm:meanRVR>
</iwxxm:AerodromeRunwayVisualRange>
</iwxxm:rvr>
<iwxxm:presentWeatherxlink:href="http://codes.wmo.int/306/4678/DZ" xlink:title="Moderate Drizzle"/>
<iwxxm:presentWeatherxlink:href="http://codes.wmo.int/306/4678/FG" xlink:title="Fog"/>
<iwxxm:cloud>
<iwxxm:AerodromeObservedClouds>
<iwxxm:layer>
<iwxxm:CloudLayer>
<iwxxm:amountxlink:href="http://codes.wmo.int/bufr4/codeflag/0-20-008/2" xlink:title="Scattered"/>
<iwxxm:baseuom="ft">1000</iwxxm:base>
</iwxxm:CloudLayer>
</iwxxm:layer>
<iwxxm:layer>
<iwxxm:CloudLayer>
```

METAR – IWXXM Format

```
<iwxxm:amount xlink:href="http://codes.wmo.int/bufr4/codeflag/0-20-008/4" xlink:title="Overcast"/>
<iwxxm:base uom="ft">2000</iwxxm:base>
</iwxxm:CloudLayer>
</iwxxm:layer>
</iwxxm:AerodromeObservedClouds>
</iwxxm:cloud>
</iwxxm:MeteorologicalAerodromeObservationRecord>
</om:result>
</om:OM_Observation>
</iwxxm:observation>
<iwxxm:trendForecast>
<om:OM_Observation gml:id="trend-fcst-1">
<om:typexlink:href="http://codes.wmo.int/49-2/observation-type/IWXXM/1.0/MeteorologicalAerodromeTrendForecast" xlink:title="Aerodrome Trend Forecast"/>
<!--time at which the forecast conditions actually occur -->
<om:phenomenonTime>
<gml:TimePeriod gml:id="tp-201208221630Z-201208221700Z">
<gml:beginPosition>2012-08-22T16:30:00Z</gml:beginPosition>
<gml:endPosition>2012-08-22T17:00:00Z</gml:endPosition>
</gml:TimePeriod>
</om:phenomenonTime>
<!--time at which the results of the observation were made available -->
<om:resultTime xlink:href="#ti-201208221640Z"/>
<om:procedure xlink:href="#p-49-2-metar" xlink:title="WMO 49-2 METAR procedure"/>
<om:observedProperty xlink:href="http://codes.wmo.int/49-2/observable-property/MeteorologicalAerodromeTrendForecast" xlink:title="METAR trend forecast properties"/>
<om:featureOfInterest xlink:href="#sampling-point-03839"/>
<om:result>
<iwxxm:MeteorologicalAerodromeTrendForecastRecord gml:id="trend-fcst-record-03839-201208221630Z-201208221700Z"
changeIndicator="BECOMING" cloudAndVisibilityOK="false">
<iwxxm:prevailingVisibility uom="m">800</iwxxm:prevailingVisibility>
<iwxxm:forecastWeather xlink:href="http://codes.wmo.int/306/4678/FG" xlink:title="Fog"/>
</iwxxm:MeteorologicalAerodromeTrendForecastRecord>
</om:result>
</om:OM_Observation>
</iwxxm:trendForecast>
<iwxxm:trendForecast>
<om:OM_Observation gml:id="trend-fcst-2">
<om:typexlink:href="http://codes.wmo.int/49-2/observation-type/IWXXM/1.0/MeteorologicalAerodromeTrendForecast" xlink:title="Aerodrome Trend Forecast"/>
```

<!--time at which the forecast conditions actually occur -->

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METAR – IWXXM Format

```
<om:phenomenonTime>
<gml:TimePeriodgml:id="tp-201208221800Z-201208221900Z">
<gml:beginPosition>2012-08-22T18:00:00Z</gml:beginPosition>
<gml:endPosition>2012-08-22T19:00:00Z</gml:endPosition>
</gml:TimePeriod>
</om:phenomenonTime>
<!--time at which the results of the observation were made available -->
<om:resultTimexlink:href="#ti-201208221640Z"/>
<om:procedurexlink:href="#p-49-2-metar" xlink:title="WMO 49-2 METAR procedure"/>
<om:observedPropertyxlink:href="http://codes.wmo.int/49-2/observable-property/MeteorologicalAerodromeTrendForecast"
xlink:title="METAR trend forecast properties"/>
<om:featureOfInterestxlink:href="#sampling-point-03839"/>
<om:result>
<iwxxm:MeteorologicalAerodromeTrendForecastRecordgml:id="trend-fcst-record-03839-201208221800Z-201208221900Z"
changeIndicator="BECOMING" cloudAndVisibilityOK="false">
<iwxxm:prevailingVisibilityuom="km">10</iwxxm:prevailingVisibility>
<iwxxm:prevailingVisibilityOperator>ABOVE</iwxxm:prevailingVisibilityOperator>
<iwxxm:forecastWeathernilReason="http://codes.wmo.int/common/nil/nothingOfOperationalSignificance"/>
</iwxxm:MeteorologicalAerodromeTrendForecastRecord>
</om:result>
</om:OM_Observation>
</iwxxm:trendForecast>
</iwxxm:METAR>
```