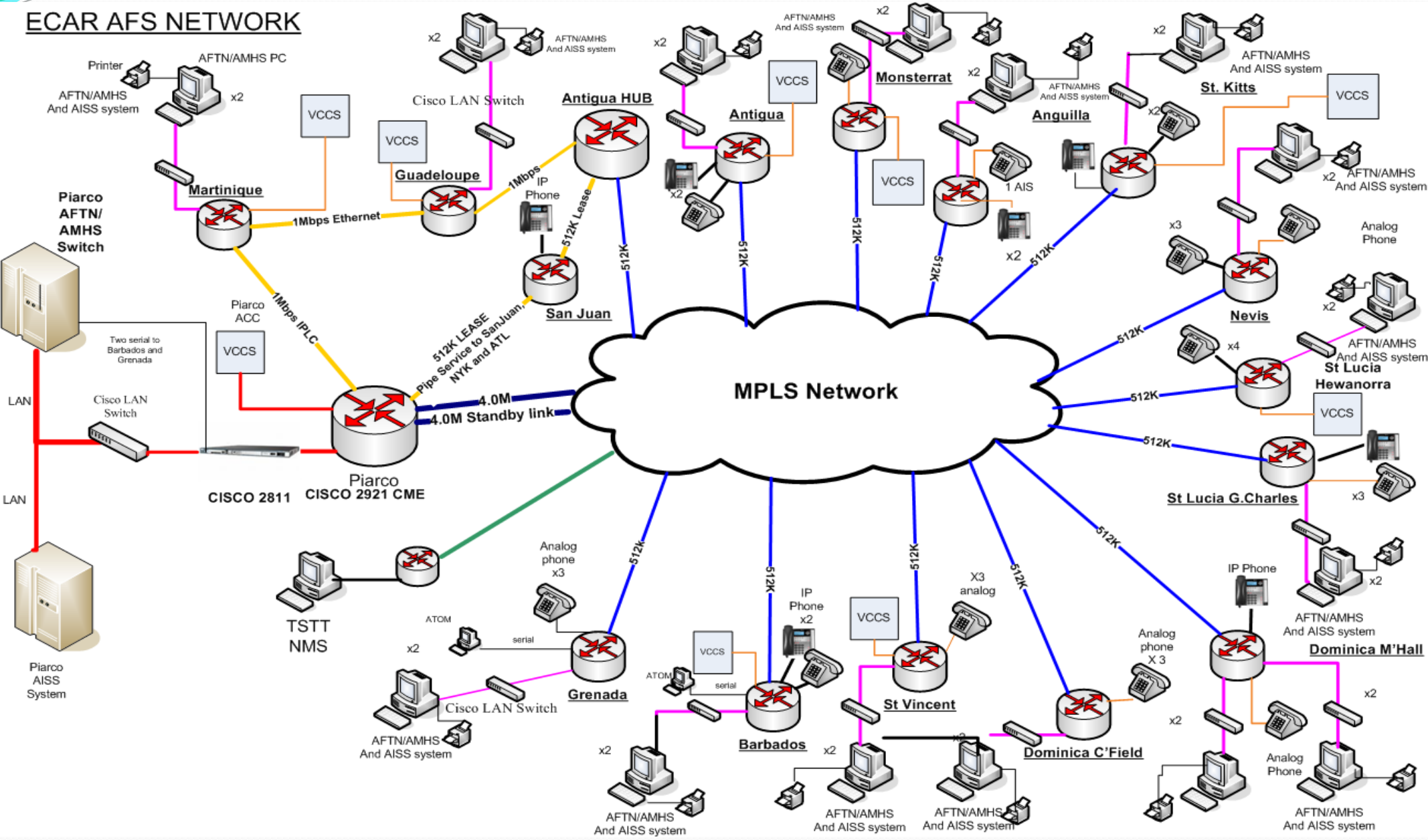
FIFTH EASTERN CARIBBEAN NETWORK TECHNICAL GROUP MEETING - E/CAR/NTG/5

GUADELOUPE
October 22nd, 2014

Agenda

- Overview of ECAR AFS Network
- Overview of AMHS Network
- Maintenance Procedures
- Network Performance Analysis
- Radar Sharing Overview


ECAR AFS NETWORK
MPLS Network
Piarco AFTN/ AMHS Switch
Piarco AISS System
Piarco CISCO 2921 CME
CISCO 2811
Piarco ACC
Martinique
Guadeloupe
Antigua HUB
San Juan
Antigua
Monsterrat
Anguilla
St. Kitts
Nevis
St Lucia Hewanorra
St Lucia G.Charles
Dominica M'Hall
Dominica C'Field
St Vincent
Barbados
Grenada
TSTT NMS
1Mbps Ethernet
1Mbps IPLC
512K LEASE Pipe Service to SanJuan, NYK and ATL
4.0M
4.0M Standby link
512K Lease
512K
VCCS
Cisco LAN Switch
AFTN/AMHS And AISS system
AFTN/AMHS PC
Printer
IP Phone
Analog Phone
Analog phone x3
Analog phone X 3
X3 analog
IP Phone x2
1 AIS
ATOM
serial
LAN
Two serial to Barbados and Grenada

Challenges

DOMINICA POWER FLUCTATIONS

- There is the constant issue as it relates to power regularity and conditioning on the island. The frequency of outages has decreased but it is suggested a power regulation analysis be conducted at both airports in order to deliver safe and clean power to AFS hardware.

SAN JUAN

- TSTT and FAA staff traced and tagged the location of all E/CAR circuits. Both Verizon fractional T1s were on the same fiber Mux (DDM-1000). Previous simultaneous failures on the ANU and PCO links have occurred. It is our recommendation that one of the fractional T1s be moved to copper solution . (Active HiGain Remote Units were seen in the communications room).

ANGUILLA

- Adverse environmental conditions continue to affect routers.

SAINT KITTS

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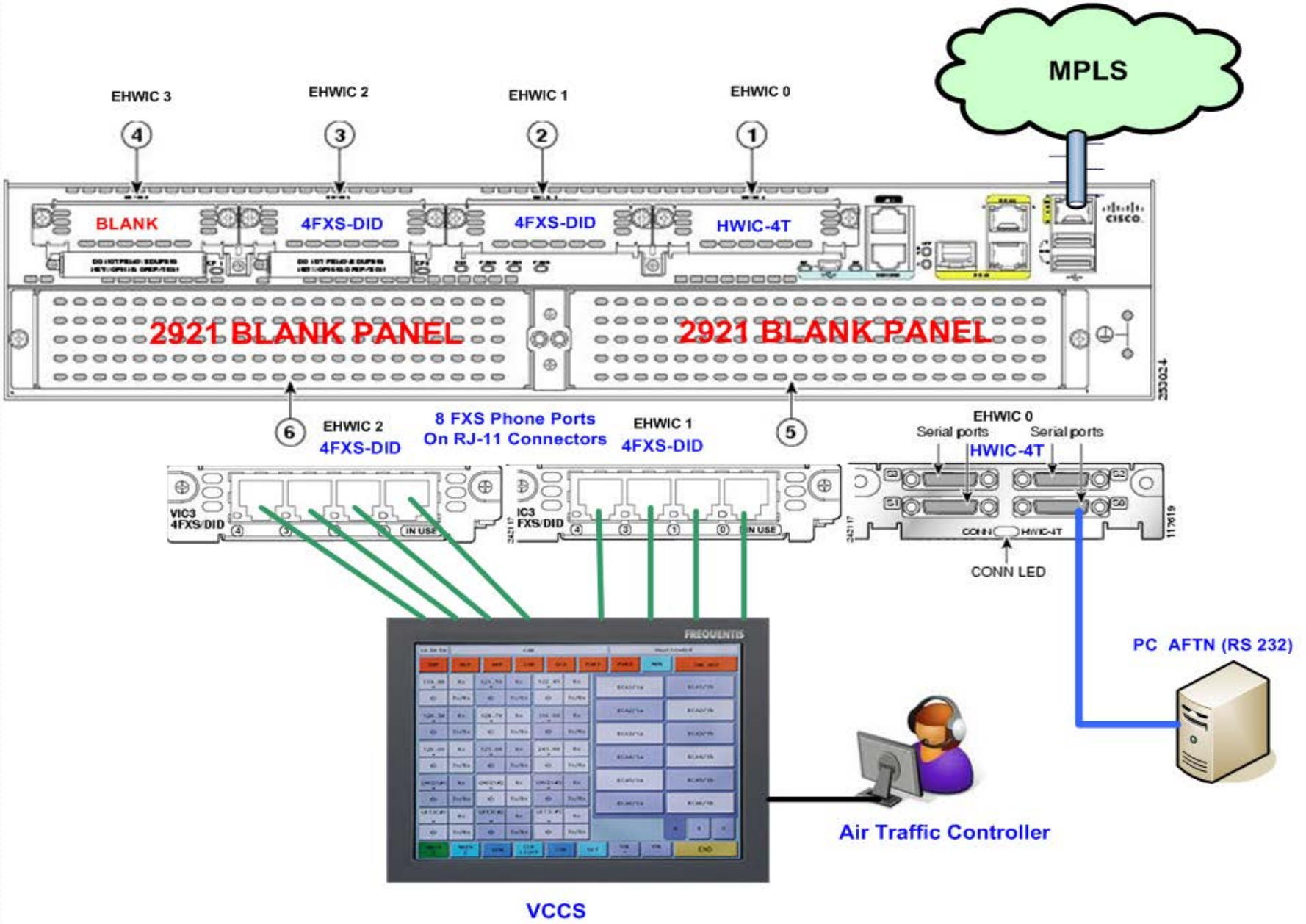

MPLS
EHWIC 3
EHWIC 2
EHWIC 1
EHWIC 0
4
3
2
1
BLANK
4FXS-DID
4FXS-DID
HWIC-4T
2921 BLANK PANEL
2921 BLANK PANEL
6
EHWIC 2
4FXS-DID
8 FXS Phone Ports
On RJ-11 Connectors
EHWIC 1
4FXS-DID
5
EHWIC 0
Serial ports
Serial ports
HWIC-4T
VIC3
4FXS/DID
IN USE
VIC3
4FXS/DID
IN USE
CONN
HWIC-4T
CONN LED
PC AFTN (RS 232)
Air Traffic Controller
VCCS

Maintenance Procedures

- Proactive monitoring is in effect for this network
- Client portal access available via http://tsttmetroe.tstt.co.tt
- Regional notifications
- Regional field forces
- Scheduled maintenance visits
  - Switching of primary to secondary routers at visit
  - Ensuring environmental conditions are upheld

Maintenance Procedures Continued

ACTIVITIES	TIMELINES
Initial feedback on fault after the report is made to the Customer Service Operations Center (CSOC)	Within 30 minutes
TSTT to identify and isolate fault of notification to Customer	Within 90 minutes
Arrival on a /AFS site from when initial feedback is received after a report is made.	Within 1-3 hours
General fault resolution time. Note This is dependent on a) Access to TTCAA's premises b) Nature of the fault c) Availability of spare equipment	Within 2-4 hours
Escalation conditions	1. No status update in any 4 hour period 2. After the first 4-hour period with no response, the first escalation should be utilized. The first call should be to the Manager of the NOC. The ESOC Manager should then be advised of the problem. 3. After five (5) hours have elapsed with no response, the second escalation should be utilized, with the first call to The Manager, technical Solutions and Support , should be advised of the problem soon thereafter. 4. After seven (7) hours have elapsed with no response, the third escalation should be utilized.

Maintenance Procedures Continued

FIXED MAINTENANCE	DEFINITION
Routine Maintenance during normal working hours	TSTT staff providing maintenance for AFS NETWORK
Monitoring of the network (24 x 7 x 365)	TSTT for the Voice Network & CISCO DEVICES.
Dedicated Technical Support at Piarco	TSTT technical person to visit Piarco Monday to Friday from 8 am – 9 pm for the purpose of conducting maintenance on circuits, AFS communication equipment upon requirement of truck roll via incident report.
Biannual visits to sites	1. Bi-annual visits to Caribbean Territories Sites to conduct operational audit on MPLS circuits and demark end devices. 2. March and DECEMBER visits to Caribbean Territories to conduct operational audits on circuits and CISCO equipment.

CONTRACT MAINTENANCE	DEFINITION
Maintenance weekends and Public Holidays	Any maintenance conducted by TSTT and or Contractors between 8 am – 9 pm
Repair & Replacement of components.	Any Repair or replacement of TSTT Network elements or components within Network elements.

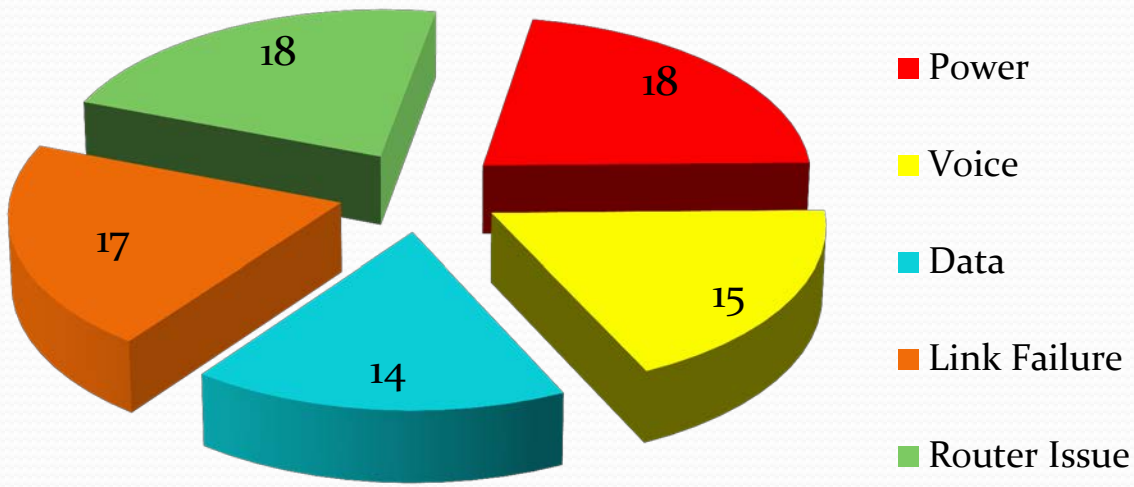
Faults

TICKETS

Month	# of Tickets Reported
July 2013	5
August 2013	7
September 2013	1
October 2013	3
November 2013	5
December 2013	5
January 2014	5
February 2014	5
March 2014	3
April 2014	9
May 2014	10
June 2014	1
July 2014	5
August 2014	11
September 2014	7
Total	**82**

Total Number of Tickets: 82
Total closed July 2013-Septber 2014: 72
Total pending as at September 2014: 10

FAULTS BREAKOUT



Faults Continued

Country	Number of Faults
Anguilla	10
Antigua	5
Barbados	4
Dominica-Canefield	6
Dominica Melville Hall	3
Grenada	0
Guadeloupe	5
Martinique	7
Montserrat	1
Nevis	7
Saint Lucia-George F Charles	4
Saint Lucia-Hewanorra	3
Saint Kitts	10
St. Vincent and the Grenadines	3
Sint Maarten	3
Tobago	5
Trinidad	5
United States of America-San Juan	1

Node Availability Statistics August 2013-September 2014

Node	IP Address	Availability
CAA_ANU_AS01_P_3560.ttcaa.local	10.200.254.74	99.85 %
CAA_ANU_CME01_P_2921.ttcaa.local- ANTIGUA	10.200.254.7	99.85 %
CAA_AXA_CME01_P_2921.ttcaa.local- ANGUILLA	10.200.254.9	98.92 %
CAA_BGI_AS01_P_3560.ttcaa.local	10.200.254.154	99.90 %
CAA_BGI_CME01_P_2921.ttcaa.local- BARBADOS	10.200.254.17	99.90 %
CAA_DCF_CME01_P_2921.ttcaa.local- DOMINICA CANEFIELD	10.200.254.15	97.37 %
CAA_DOM_CME01_P_2921.ttcaa.local- MELVILLE HALL	10.200.254.14	99.64 %
CAA_FDF_CME01_P_2921.ttcaa.local- MARTINIQUE	10.200.254.4	99.51 %
CAA_GND_CME01_P_2921.ttcaa.local- GRENADA	10.200.254.18	99.91 %
CAA_MNI_AS01_P_3560.ttcaa.local	10.200.254.82	99.88 %
CAA_MNI_CME01_P2921.ttcaa.local- MONSERRAT	10.200.254.8	99.88 %
CAA_NEV_CME01_P_2921.ttcaa.local- NEVIS	10.200.254.11	98.43 %
CAA_POS_AFTN01_P_2811.ttcaa.local- PIARCO	10.200.254.2	99.92 %
CAA_POS_AS01_P_3560.ttcaa.local	10.200.254.37	99.92 %
CAA_POS_CME01_S_2921.ttcaa.local	10.200.254.1	99.92 %
CAA_PTP_CME01_P_2921.ttcaa.local- GUADALOUPE	10.200.254.3	99.70 %
CAA_SJN_CME01_P_2921.ttcaa.local- SANJUAN	10.200.254.5	99.72 %
CAA_SKB_AS01_P_3560.ttcaa.local	10.200.254.98	99.28 %
CAA_SKB_CME01_P_2921.ttcaa.local- ST.KITTS	10.200.254.10	99.34 %
CAA_SLU_CME01_P_2921.ttcaa.local- ST.LUCIA GF CHARLES	10.200.254.13	99.92 %
CAA_STX_AS01_P_3560.ttcaa.local	10.200.254.68	99.92 %
CAA_STX_CME01_P_2921.ttcaa.local - ANTIGUA HUB/ST MAARTEN	10.200.254.6	99.92 %
CAA_SVD_AS01_P_3560.ttcaa.local	10.200.254.146	98.04 %
CAA_SVD_CME01_P_2921.ttcaa.local- ST.VINCENT	10.200.254.16	98.04 %
CAA_TGO_AS01_P_3560.ttcaa.local	10.200.254.170	99.86 %
CAA_TGO_CME01_P_2921.ttcaa.local-TOBAGO	10.200.254.19	99.86 %
CAA_UVF_AS01_P_3560.ttcaa.local	10.200.254.114	98.67 %
CAA_UVF_CME01_P_2921.ttcaa.local- ST.LUCIA HEWANORRA	10.200.254.12	98.67 %

Availability Statistics - Comparison

Country	% Availability 2013	% Availability 2014
Anguilla	96.0	98.9
Antigua	93.6	99.9
Barbados	99.4	99.9
Dominica - Canefield	93.4	97.4
Dominica - Melville Hall	99.1	99.6
Grenada	97.9	99.9
Guadeloupe	99.1	99.7
Martinique	99.3	99.5
Montserrat	99.0	99.9
Nevis	98.9	98.4
Saint Kitts	91.3	99.3
Saint Lucia -George F Charles	99.1	99.9
Saint Lucia- Hewanorra	97.8	98.7
St. Vincent and the Grenadines	99.0	98.1
Tobago	99.6	99.7
Trinidad	99.7	99.8
United States of America (San Juan)	93.2*	99.7

Fault Summary

- Network has been extremely stable & resilient highlighted by increased availability statistics in almost every state.
- The time taken by LIME to respond to faults has been addressed and truck rolls will occur more quickly moving forward.
- Router issues are being addressed with Smartnet and all outstanding routers will be returned to states affected.

Maintenance Schedule

- Scheduled preventative maintenance of the network was deferred due to configurations for additional services to the TTCAA network.

- The next maintenance visit is tentatively scheduled for November – December 2014.

Radar Sharing

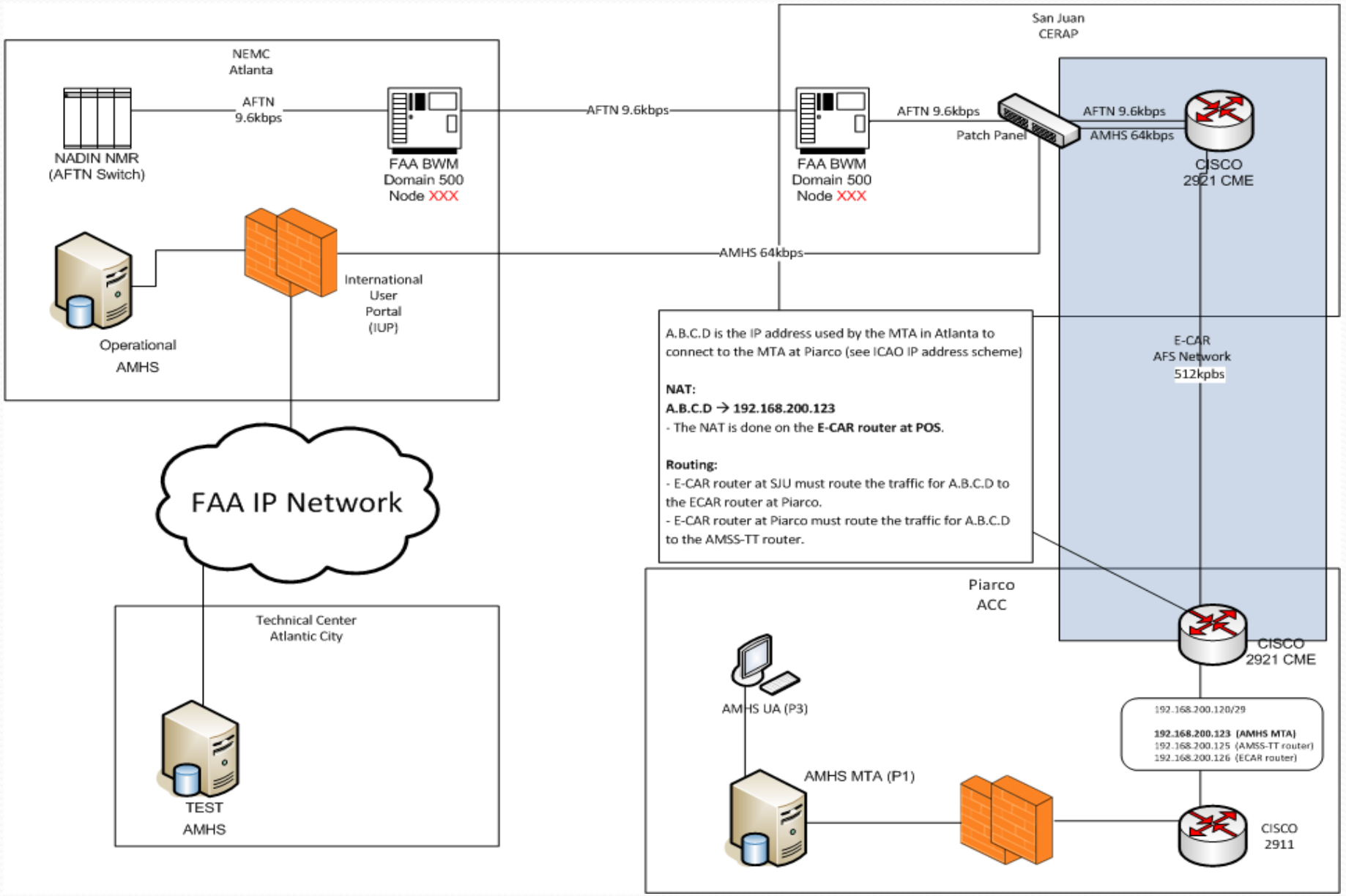
- Radar is currently being shared between Piarco, Martinique (and Barbados).
- Tunneling licenses utilized to allow this radar sharing.
- Radar sharing via multicasting over IP is currently being tested between Piarco and Martinique.
- Eventual radar sharing with the E/CAR States.

On-going Network Activities

- MEVA-E/CAR interconnection in San Juan E/CAR node for Radar Sharing with Sint Maarten and voice circuits between Sint Maarten and Anguilla has been completed.

	ATS Units	Interconnection MEVA II- E/CAR AFS Network (San Juan)	
		Voice	Data
SINT MAARTEN/ JULIANA APP	Anguilla (Clayton J. Lloyd International)	√	
	Antigua (V. C. Bird APP)	√	√
	Saint Kitts (Robert L. Bradshaw TWR)	√	
	PIARCO ACC		√

AMHS interoperability testing between United States (Atlanta) and Piarco and associated configuration and support of the nodes at Piarco and San Juan.



Thank You