



NYC Forum

Mitigating Interference from the Receiving End

Public Broadcasting Service
Interference Events
November 2011 – April 2012

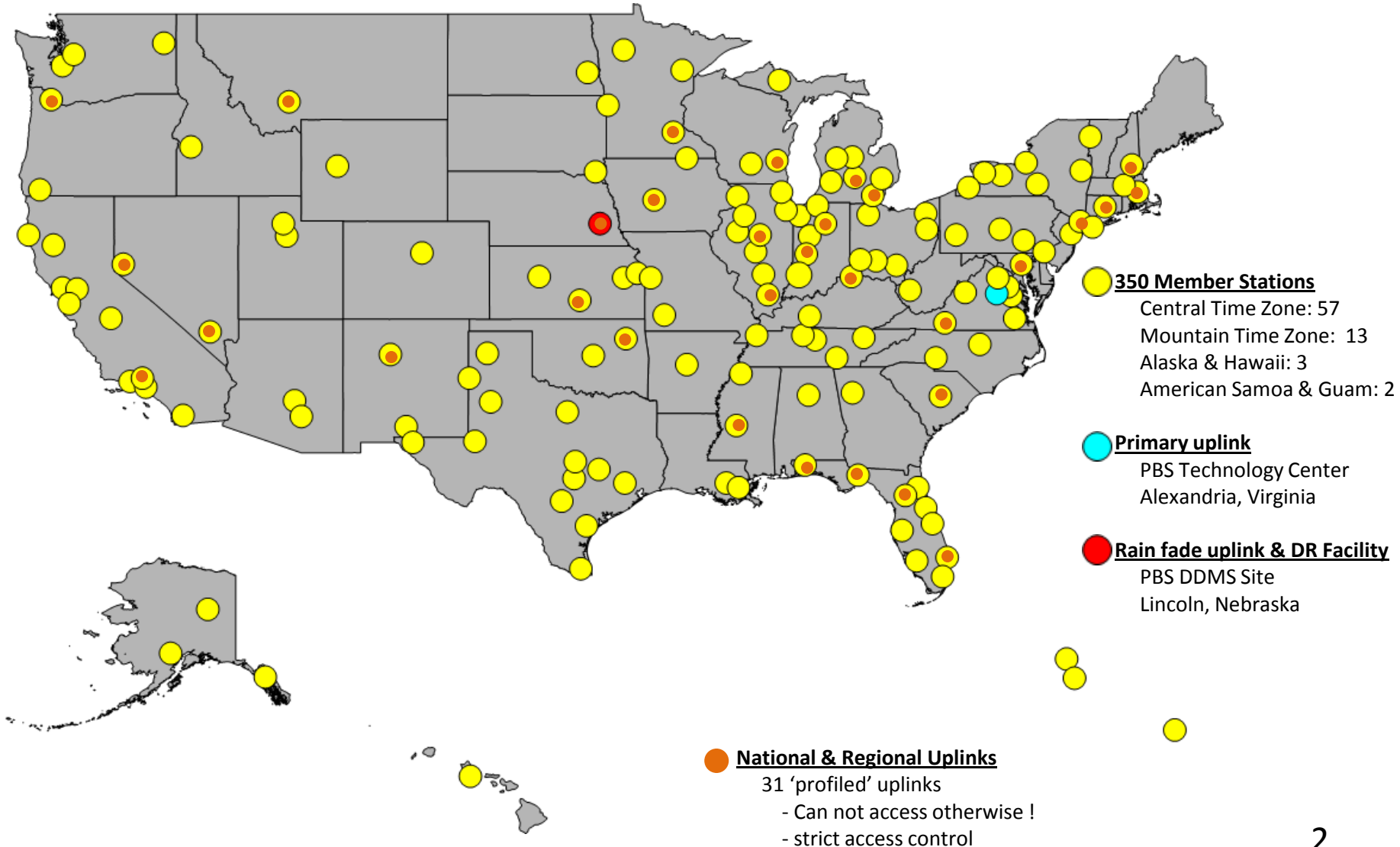
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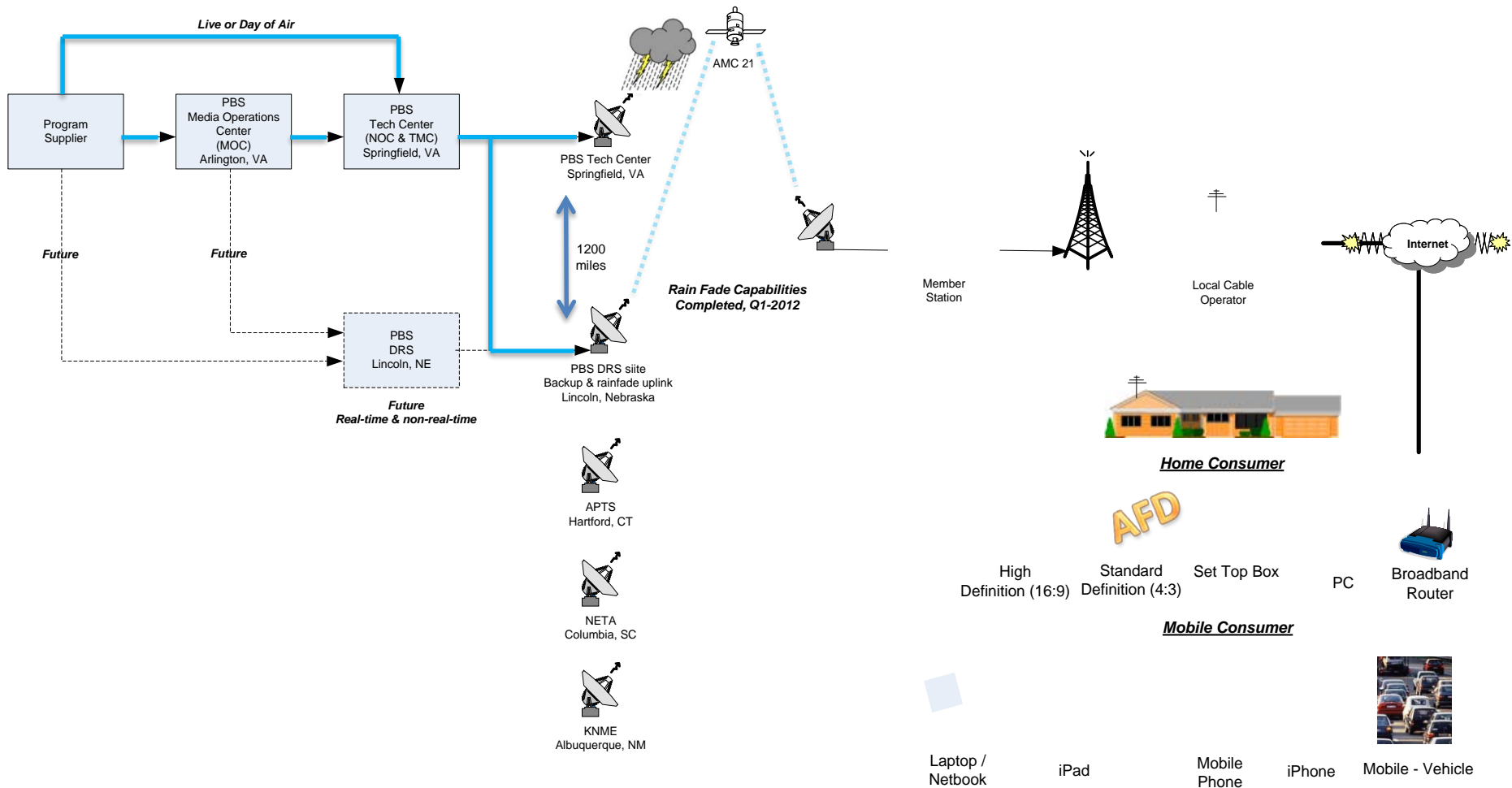
Public Television Interconnection System

Member Stations



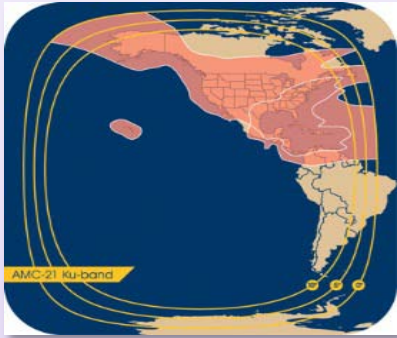
Public Television Interconnection System

Program Distribution Overview – via AMC 21 (Ku)



Public Television Interconnection System

Satellite Bandwidth Allocation – Current MPEG 2 (DVB-S / QPSK)



AMC 21

125W KU Band

Transponder 21 (MCPC)

Protection: Transponder
Services:

1. Non-Real- Time File Delivery

Transponder 22 (MCPC)

Protection: Full

Services:

1. HD01
2. HD02
3. Data

Transponder 23 (SCPC)

Protection: Transponder
Services:

1. HD04
2. SD05
3. SD06
4. SD07

Transponder 24 (MCPC)

Protection: Full

Services:

1. HD03
2. SD01
3. SD02 (Create)
4. SD03 (Vme)
5. SD04 (World)



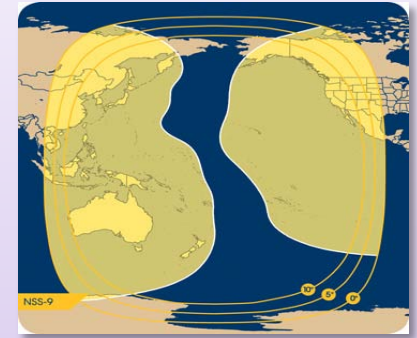
AMC 1

103W C Band

Transponder 20 (SCPC)

Protection: Transponder
Services:

1. Clear Feed (HD &SD)



NSS 9

183E C Band

Transponder 9 (SCPC)

Protection: Transponder
Services:

1. HD01 for Guam & Samoa

PBS staffing:

24x7x365 monitoring of
Satellite performance & access control

Public Television Interconnection System

- On Air Reliability
 - FY2010 - 99.96%
 - FY2011 - 99.98%
 - FY2012 – 99.98%
- FY2012 breakdown
 - 84% - Transmission
 - KU Rain Fade incidents
 - **22 hours of Satellite Interference (Nov. '11 to April '12)**
 - 8% - Equipment
 - 4% - Operator
 - 3% - Media

Satellite Interference

	DATE	SATELLITE	TRANSPONDER	START TIME	END TIME	DURATION
1	Wed 11/02/2011	AMC 21	TX 22	9:30:00	20:30:00	11:00:00
2	Tue 11/08/2011	AMC 21	TX 22	11:00:00	16:30:00	5:30:00
3	Mon 11/14/2011	AMC 21	TX 22	18:45:00	19:00:00	0:15:00
4	Tue 03/06/2012	AMC 21	TX 22	12:45:00	14:30:00	1:45:00
5	Tue 04/17/2012	AMC 21	TX 21	16:45:00	18:45:00	2:00:00
6	Wed 04/18/2012	AMC 21	TX 22	11:55:00	12:25:00	0:30:00
7	Fri 04/20/2012	AMC 21	TX 23	8:18:00	08:33:00	0:15:00
8	Fri 04/20/2012	AMC 21	TX 24	8:18:00	08:33:00	0:15:00
9	Fri 04/20/2012	AMC 21	TX 24	8:42:00	08:57:00	0:15:00
TOTAL						21:45:00

- PBS contacted Disaster Recovery uplink.
- PBS contacted each PTV authorized uplink (31 locations).
- Contacted Satellite Vendor.
- Satellite Vendor contacted AMC 21 uplinks (Broadcast & non).
- Geo targeting.

*‘... what can be done about this,
what can we do? ...’*

Public Television MPEG 4 Upgrade

- Replace existing MPEG 2 uplink encoders and decoders used to distribute ‘real-time’ content via satellite.
 - Encoders: PBS & National/Regional uplinks
 - Decoders: ~1600 units (8 per station).
 - Current MPEG 2 equipment was deployed in 2006 / 2007.
- **Goals**
 - Better utilization & reduction of satellite capacity.
 - Improve Video/Audio quality, Increase number of audio channels.
 - **Implement Carrier ID !!**
- **Timeline**
 - Q1/Q2-CY12 – Alpha & Beta Testing
 - Q2/Q3-CY12 - Parallel Distribution (MPEG 2 & 4) / Launch MPEG 4
 - Q3-CY12 - Terminate MPEG 2 Distribution

Public Television MPEG 4 Upgrade

- Carrier ID Implementation
 - Install Ericsson EN 8190 MPEG 4 encoders
 - Install Newtec M6100 modulators (DVB-S2 / 8PSK)
 - Update Public Television Technical Operating Specifications (TOS)
 - Mandatory for HD content distribution
 - Transition for SD content distribution (12 to 18 months)
 - MPEG 2 to 4 and DVB-S to DVB-S2
 - Publish Public Television Satellite Access procedures pamphlet
 - Training for PBS Technical staff
 - Encoder Setup & Training for National / Regional Uplinker's
 - Continue to 'Profile' all users of the PTV Interconnection System