

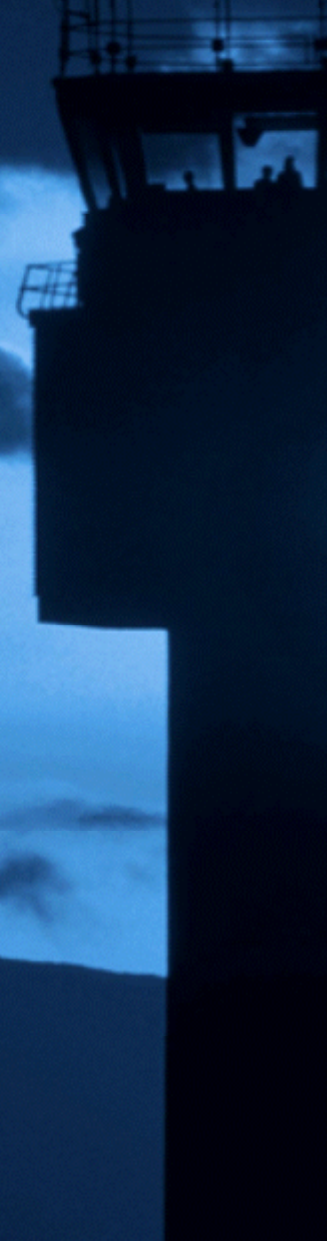
AMHS Implementation Workshop #2

Recent Examples of AMHS
Implementation

Miami, Florida, USA
April 10-12, 2012



Federal Aviation
Administration



Agenda - Key Issues

- ✓ **FAA AMHS Cutovers**
- ✓ **Current View of FAA AMHS Status**
- ✓ **Interoperability Test**
- ✓ **Cutover Planning and Procedures**
- ✓ **Dual Feed of Data**



Current View of FAA AFTN/AMHS Nodes

- ✓ **Some sense of the FAA's current AMHS status would be helpful before proceeding....**



[FROM PREVIOUS WORKSHOP, OCT, 2010]

CURRENT STATUS OF ATLANTA AMHS

- ✓ **No operational interfaces to/from ATL AMHS to date**
- ✓ **Laboratory testing of AMHS has been performed with the UK**
- ✓ **Operational test with UK is projected to occur in Q4/2010**
- ✓ **Operational cutover with UK is projected to occur in Q1/2011**



Recent Cutovers

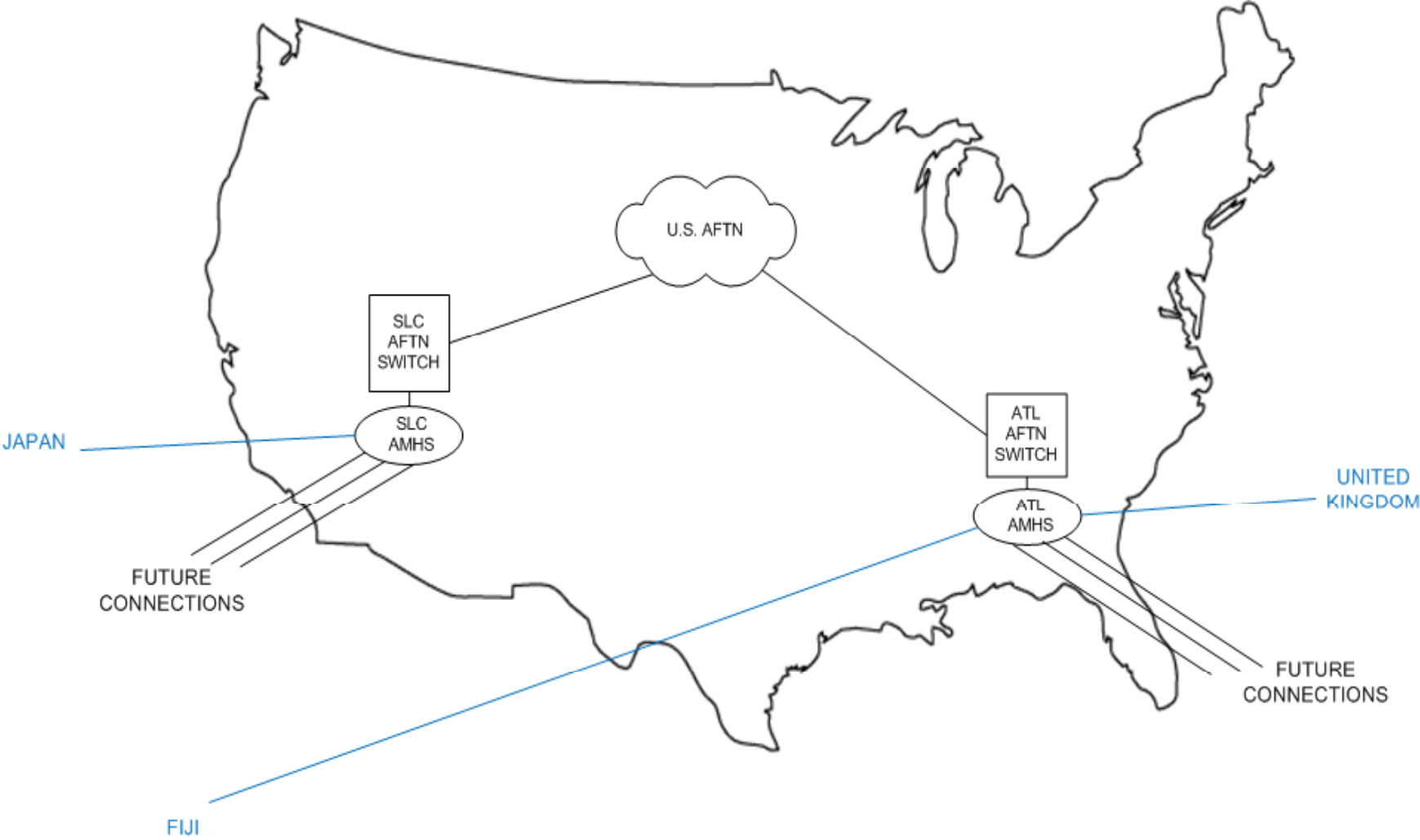
- ✓ **UK AMHS Cutover Completed in October 2011**
 - Operating successfully since then (minor hiccups initially, but nothing significant; smooth sailing after that)

Then What?

- ✓ **Fiji Cutover Just Begun (Phase 1) in March 2012**
 - “Phase 1” to be defined in upcoming slide



Current View of FAA AFTN/AMHS Nodes



Lessons Learned

✓ So What Have We Learned?

- From things done well, as well as from things done not-quite-so-well.....



Interoperability Test

- ✓ **Absolutely essential, even if systems to be tested are operating successfully**
 - Don't wait until 2 weeks before to write the procedures
 - Planning and test execution can have quite a lead time
 - Cutover planning which follows also takes substantial time
- ✓ **AMHS systems used for interop test should be either:**
 - **The actual soon-to-be operational system**
 - **A test system which replicates the operational system as much as possible**
 - Hardware platform
 - Software versions
 - Configuration
 - Addressing



Interoperability Test (cont'd)

- ✓ **Exchange of parameter information should occur very early in cycle (FAA can provide a template for this document)**
- ✓ **Test Procedures should be jointly developed**
 - **Can use EUR AMHS Manual as basis for test cases, but FAA prefers using real addressing vs. test addresses, as this offers better exercise of realistic configuration**
 - **i.e. “KATLYNYX” vs. “AMHS-SUT-1”**
- ✓ **Where desired, the FAA can provide V1 of test procedures, using previously developed procedures as a template**



Cutover Planning and Procedures

What is “Cutover” in this context?

- ✓ The migration of operational AFTN to operational AMHS between two states
- ✓ The FAA has been using a phased approach for this process, and have found it to be a useful and safe method of transition



Cutover Planning and Procedures (cont'd)

- ✓ **Cutover planning is best begun well in advance, as soon as interop test is complete or even prior in the case of a tight schedule**
- ✓ **Cutover procedures should be jointly written by both states**
 - **That, again, is good reason to begin well in advance, as this exchange tends to be a time-consuming process**
- ✓ **Cutover procedures can't possibly too detailed**
 - **Description of overall plan**
 - **Dates/Times, including all applicable time zones, of cutover activities**
 - **Step-by-step cutover process for both sides**
 - **It is useful for each side to know what the other is doing**



Cutover Planning and Procedures (cont'd)

- ✓ **No detail should be left unwritten**
- ✓ **Needs to be a single point of contact for each state to facilitate/ensure continuous communication**
- ✓ **First phase of cutover planning culminates in “Phase 1” Dual Feed of AFTN data**
- ✓ **All through the process, continuous communication is important (emails, regular conference calls, status updates)**
- ✓ **Each phase of cutover must have fallback provisions, or how to “undo” what has been done to get back to the previous operational status**



AFTN-AMHS Dual Feed

✓ What is it?

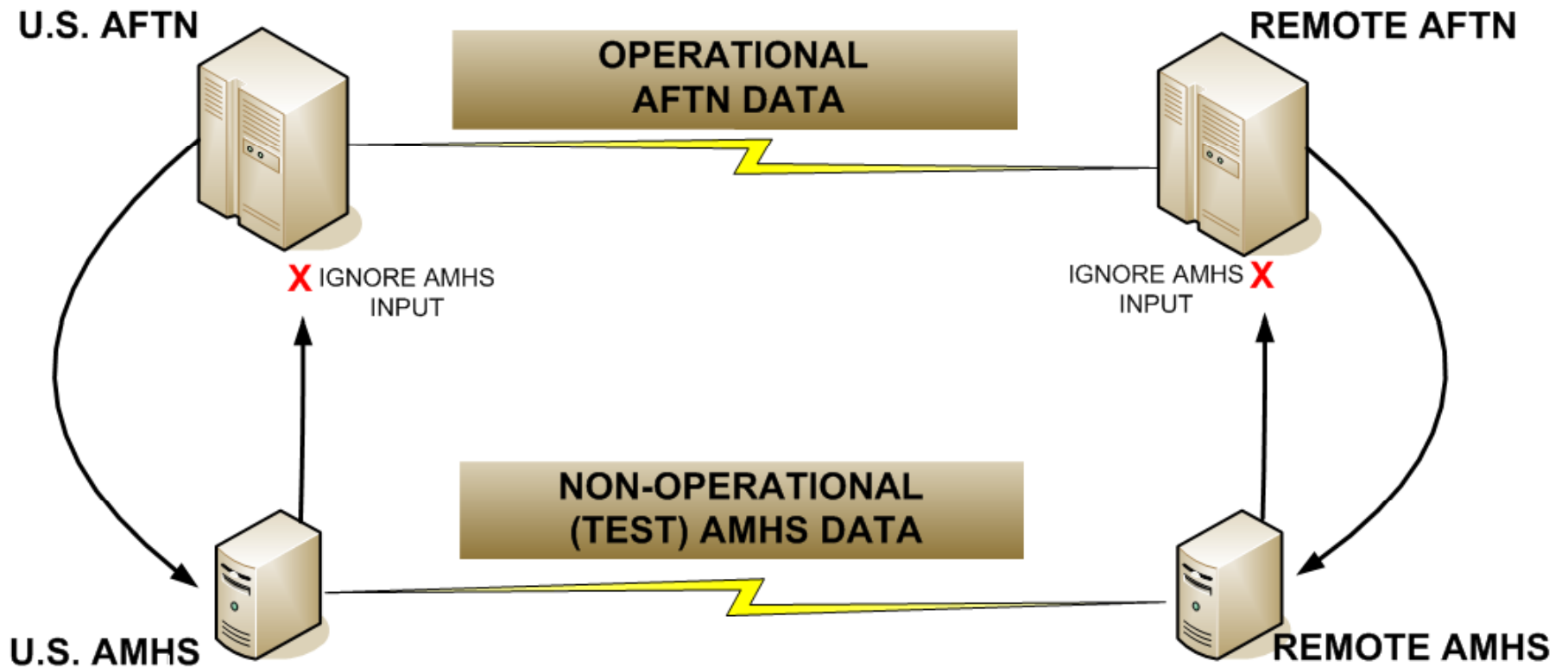
- A way to process live AFTN data through the AMHS Gateway, without impacting the operational data stream
- “Phase 1” in the FAA AMHS cutover process

✓ How is it done?

- See next page



AFTN-AMHS Dual Feed (cont'd)



AMHS TRAFFIC WILL NOT ENTER OPERATIONAL AFTN STREAM AT EITHER END ("IGNORED" BY EACH AFTN)

AFTN-AMHS Dual Feed (cont'd)

The Benefits Are Many

- ✓ Provides “operational” exercise of AMHS
- ✓ Allows opportunity for shakeout of
 - AMHS system
 - Addressing information
 - Configuration
- ✓ Training & Troubleshooting
 - Operational staff should treat the AMHS data as “real”, and respond to system events accordingly
 - Troubleshooting procedures can be refined prior to operation



AFTN-AMHS Dual Feed (cont'd)

- ✓ **AMHS feed can be stopped very easily if required**
- ✓ **Transition to operational AMHS tends to be uneventful after running the dual feed**

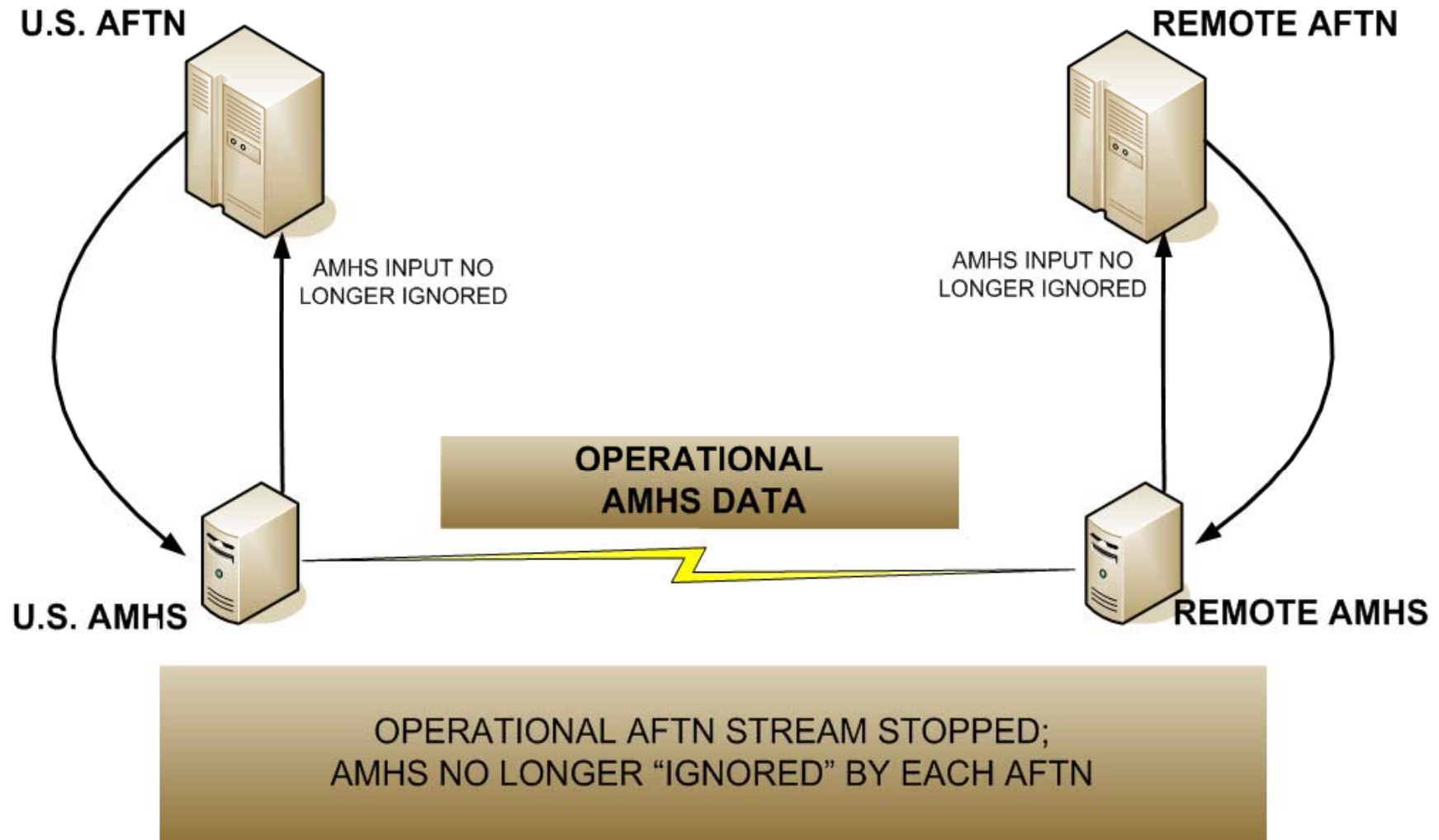


AFTN-AMHS Dual Feed (cont'd)

- ✓ **What happens when the Dual Feed period is over?**
 - The AMHS data becomes the operational message flow
 - This occurs as “Phase 2” in the FAA AMHS cutover process
- ✓ **How do we get there?**
 - Phase 2 of the cutover procedure is completed while the Phase 1 dual feed is running
 - Again, a step-by-step process, with specific dates/time/contacts required for Phase 2
- ✓ **How is it done?**
 - See next page



AFTN-AMHS Dual Feed (Following OP Cutover)



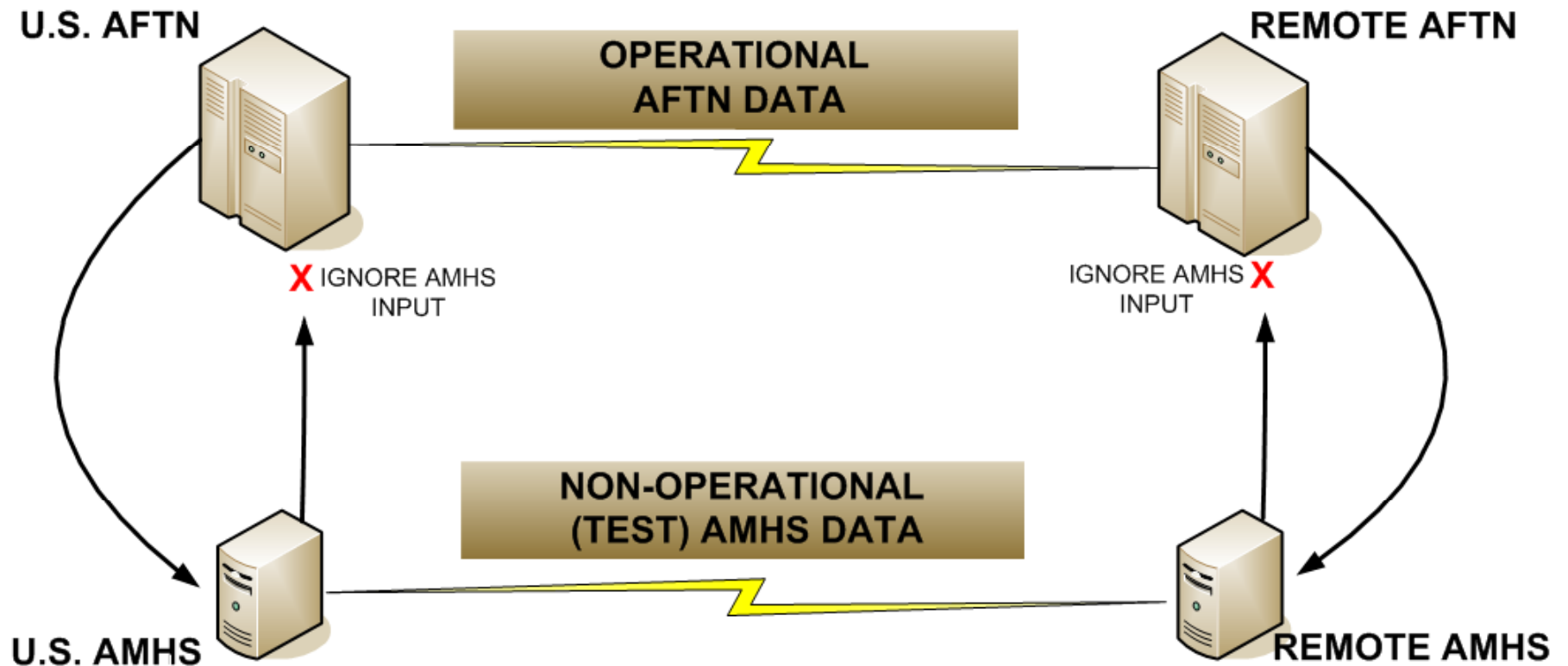
AFTN-AMHS Dual Feed (cont'd)

One Caveat (for the FAA)

- ✓ Full dual feed only possible on first cutover
- ✓ Subsequent (meaning now) dual feed must be transmit-only from FAA AMHS system to distant end, as FAA AFTN can no longer “ignore” AMHS message traffic (see diagrams on following slides)
- ✓ Still offers significant benefits, as new systems can validate receipt of incoming traffic, addressing, configuration, etc.



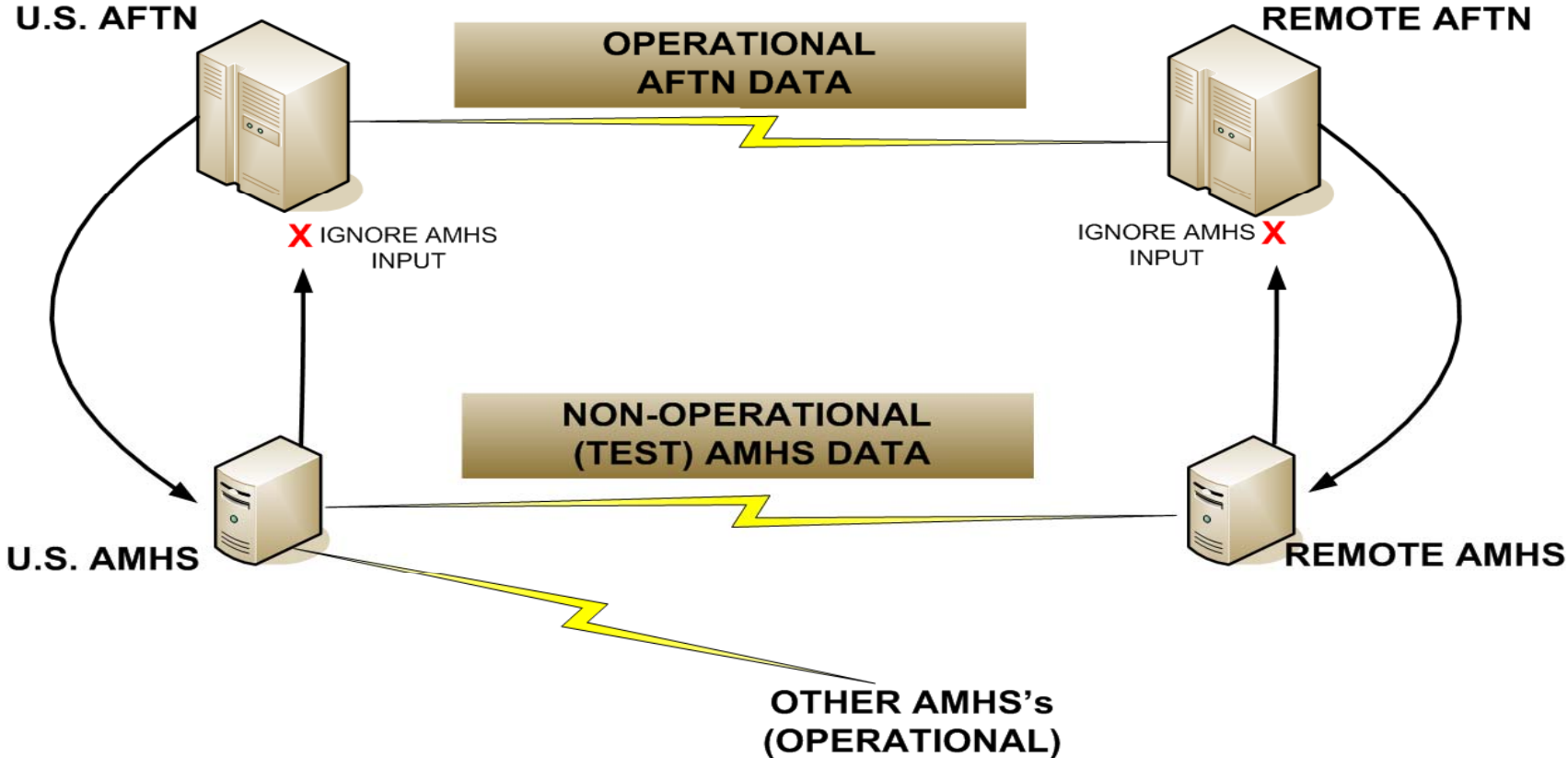
AFTN-AMHS Dual Feed (two-way, shown previously)



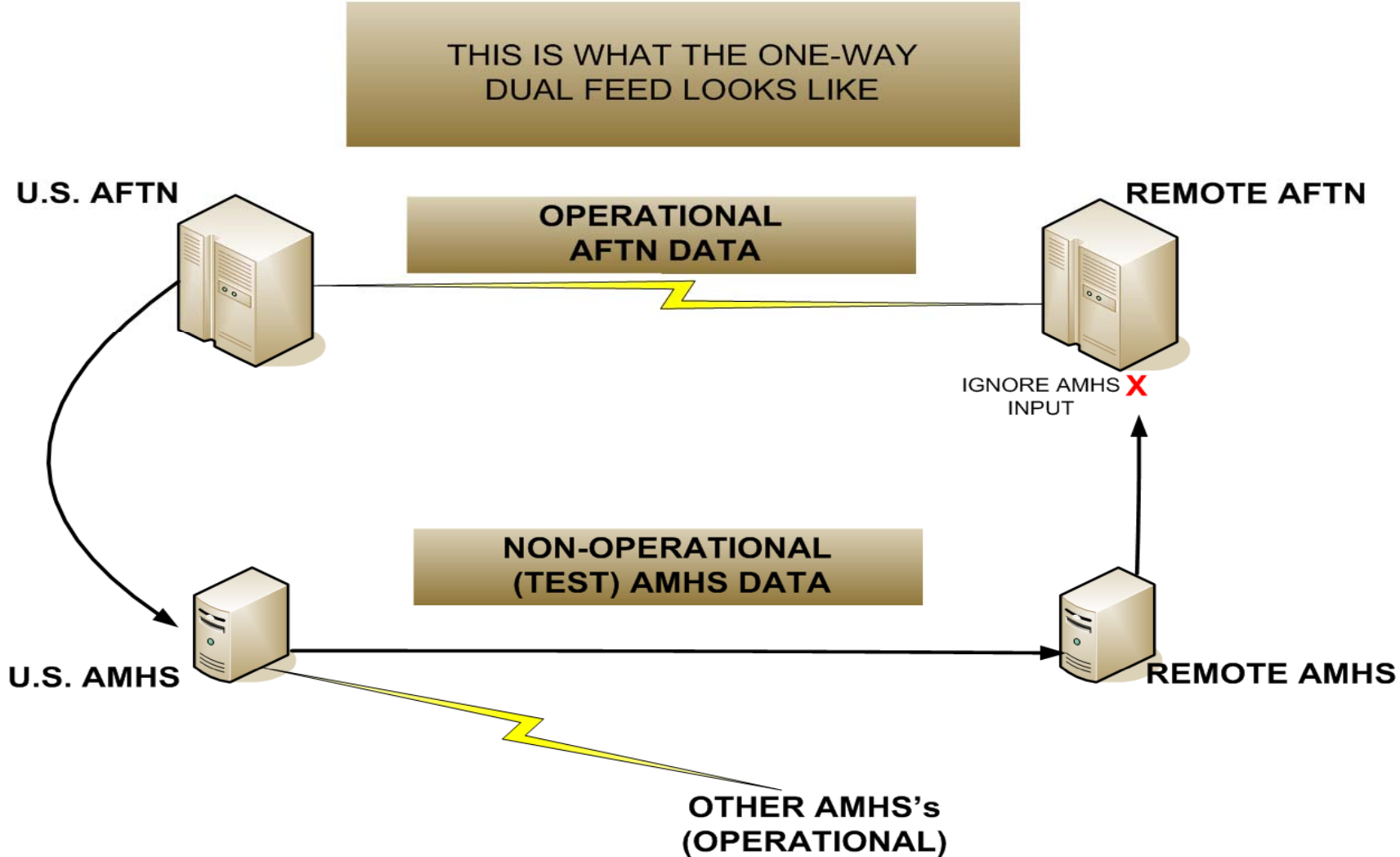
AMHS TRAFFIC WILL NOT ENTER OPERATIONAL AFTN STREAM AT EITHER END ("IGNORED" BY EACH AFTN)

AFTN-AMHS Dual Feed (unfeasible)

U.S. AFTN CAN NOT IGNORE AMHS DUE TO OPERATIONAL DATA FLOW



AFTN-AMHS Dual Feed (one-way)



AFTN-AMHS Dual Feed (cont'd)

One Caveat (cont'd)

- ✓ **Note: the FAA is looking at a possible solution to this issue – stay tuned.....**



Conclusion

Regarding AMHS Planning and Cutover:

- ✓ Careful planning is the key
- ✓ Document everything (testing, implementation) in detail
- ✓ Continuous communication between all parties



Questions?

Thanks For Your Attention

