International Civil Aviation Organization

ATN Seminar and Third ATN Transition Task Force Meeting

Singapore, 26-30 March 2001

Agenda Item: 3 ATN Ground-Ground Application

AMHS IMPLEMENTATION ISSUES

(Presented by Naoto Sakaue)

AMHS Implementation Issues

ATN Seminar

Singapore, March 26-27, 2001

Naoto Sakaue

Adviser to JCAB

Contents

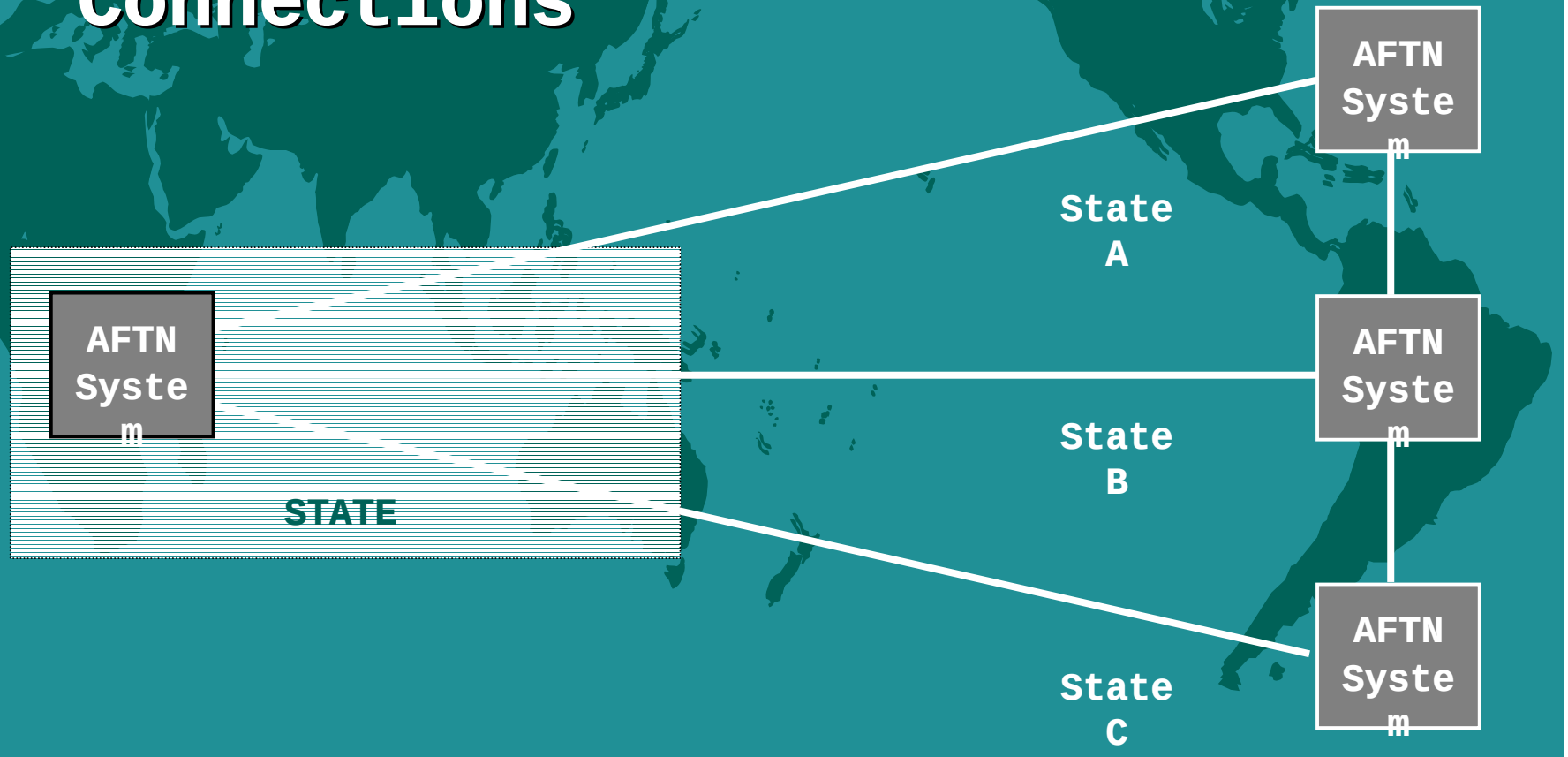
- Regional AMHS Transition
- Domestic AMHS Transition
- Special Features of AMHS
- Some Considerations
- Conclusions

Regional AMHS Transition

- Regional Transition from AFTN to AMHS
  - Phase-1: Current AFTN Connections
  - Phase-2: Gateway & ATN Router
  - Phase-3: ATS Message Server
  - Phase-4: Full AMHS International Connections
  - Phase-5: Full AMHS Connections
  - Phase-6: Full ATN Connections

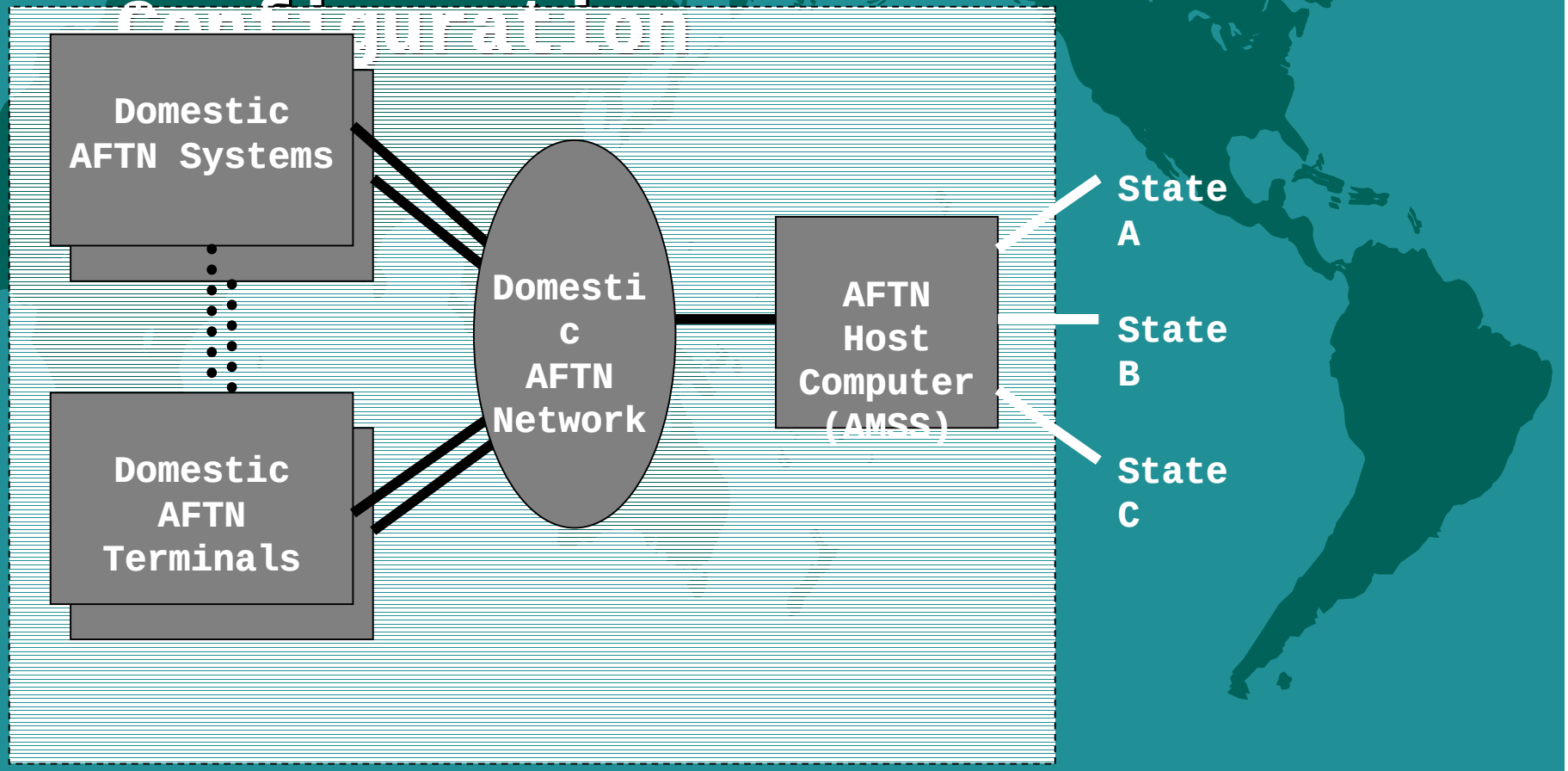
Regional AMHS Transition

- Phase-1 : Current AFTN Connections



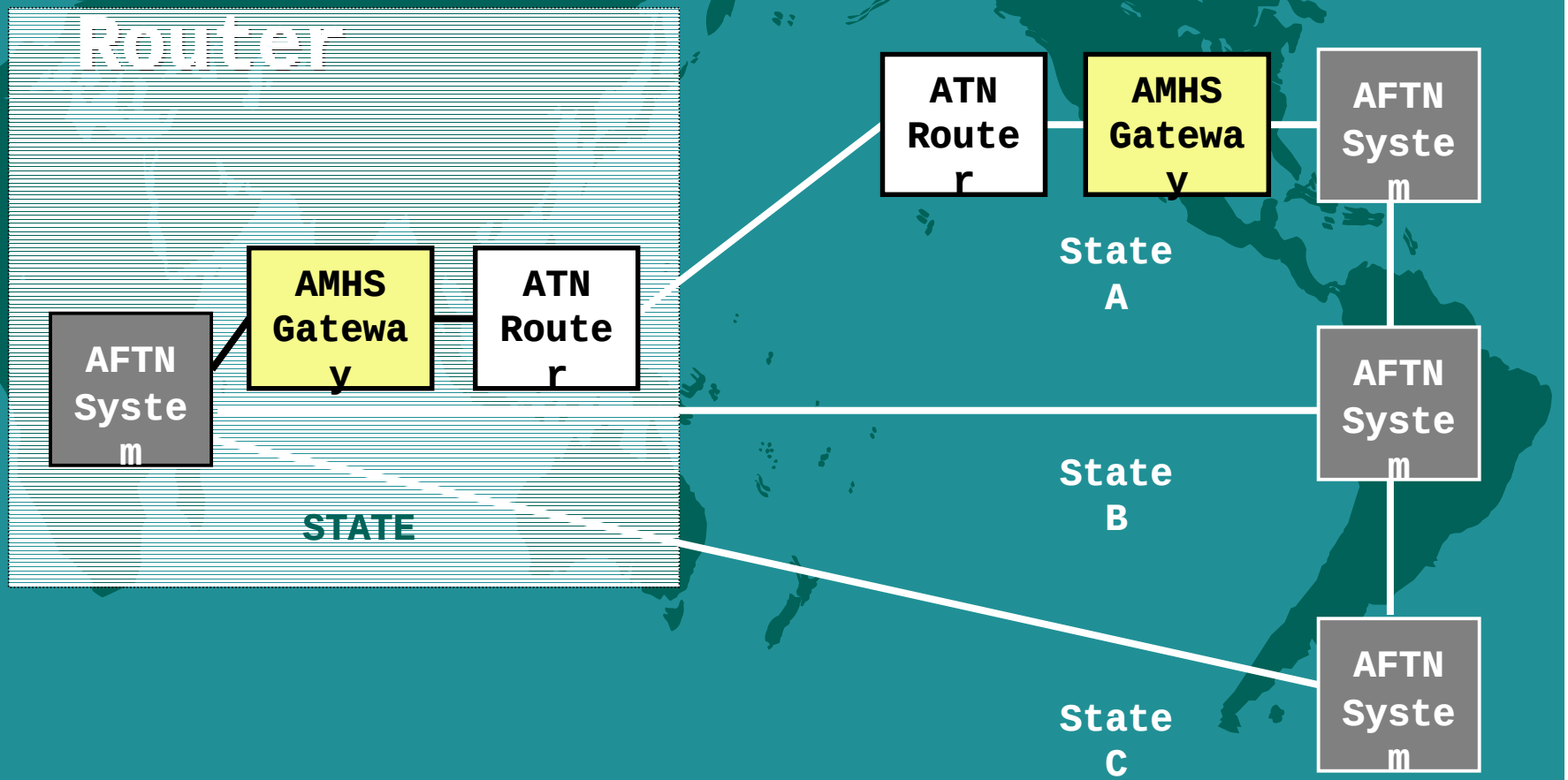
Regional AMHS Transition

- Phase-1 : Domestic Configuration



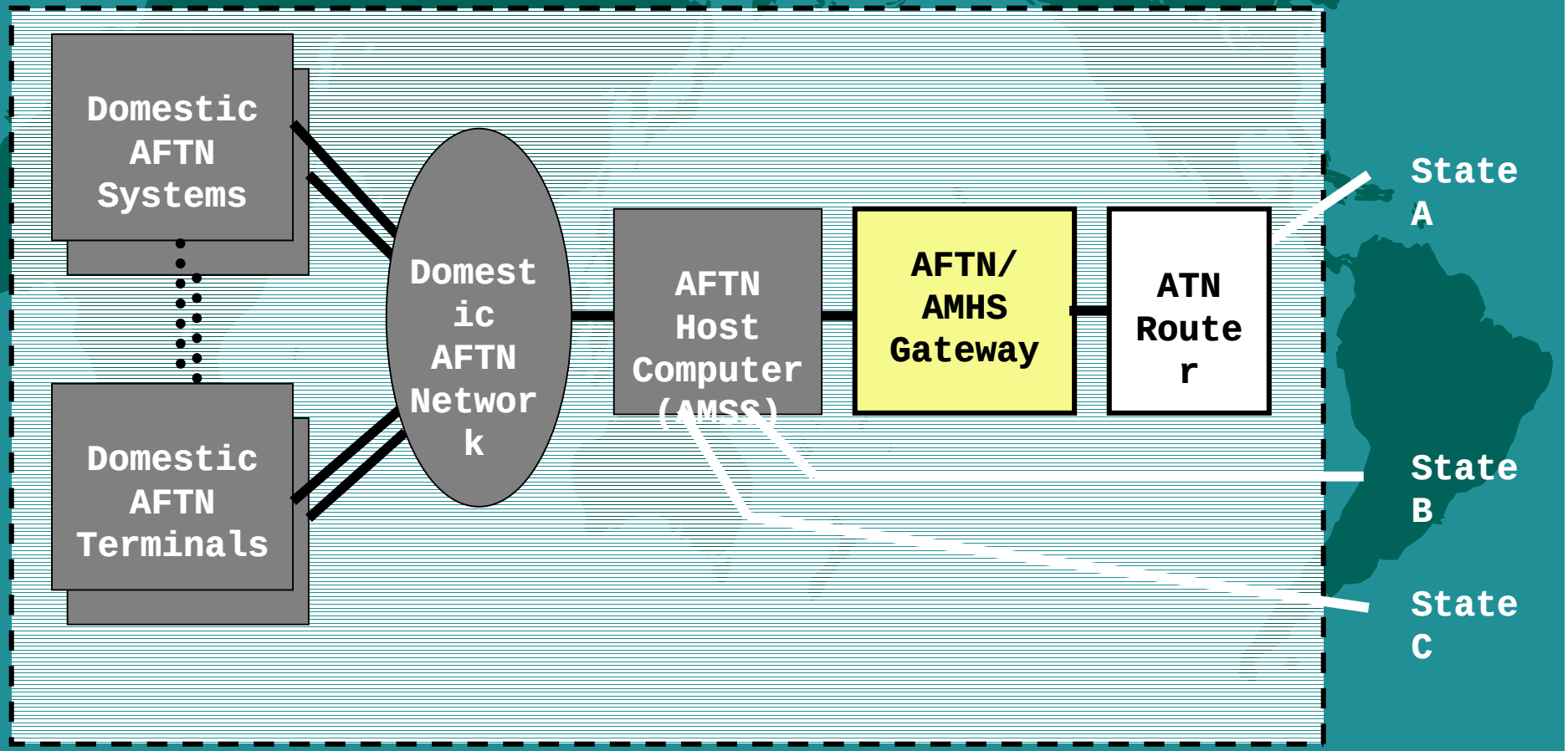
Regional AMHS Transition

- Phase-2 : Gateway & ATN



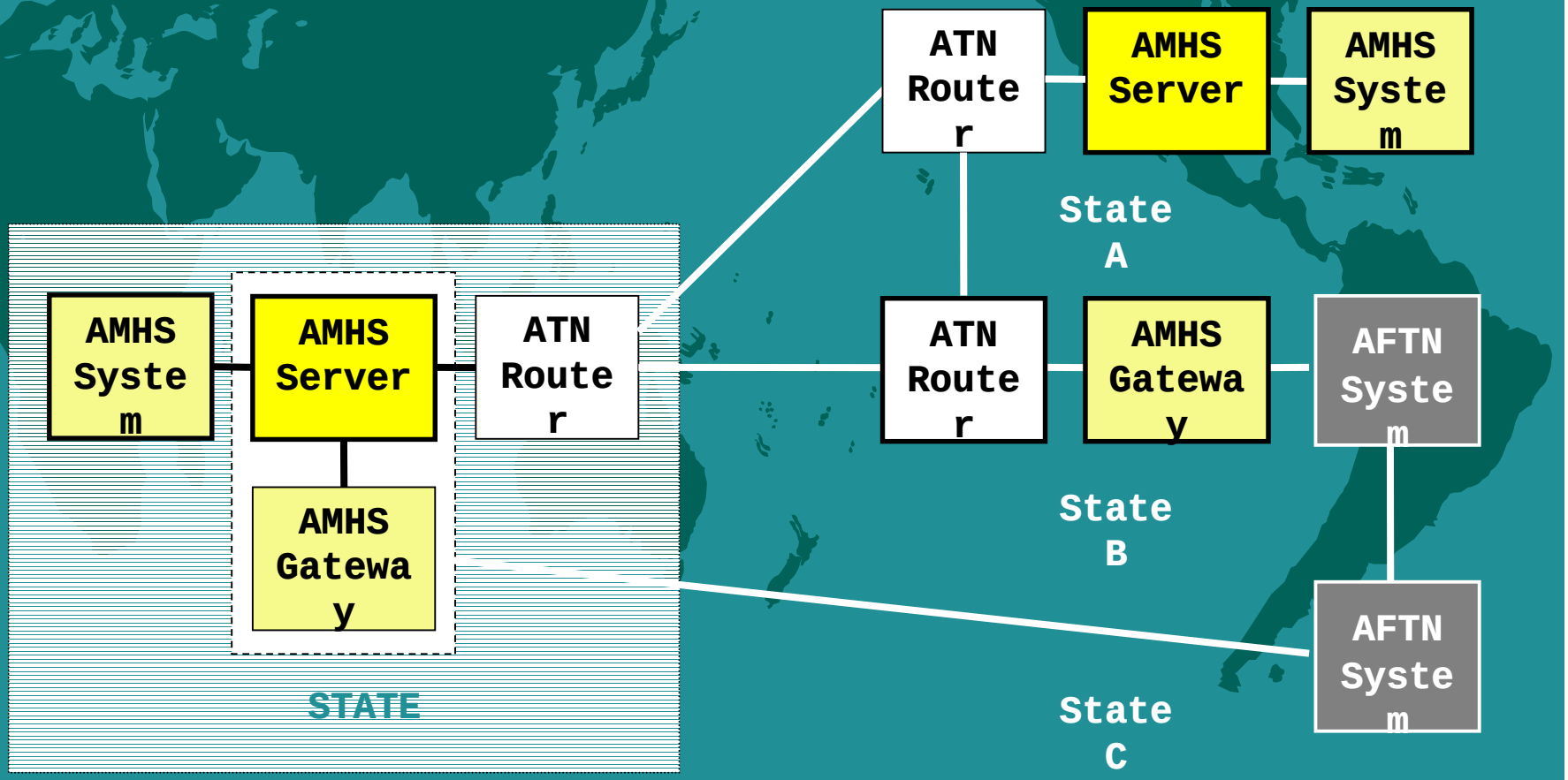
Regional AMHS Transition

- Phase-2 : Domestic Configuration



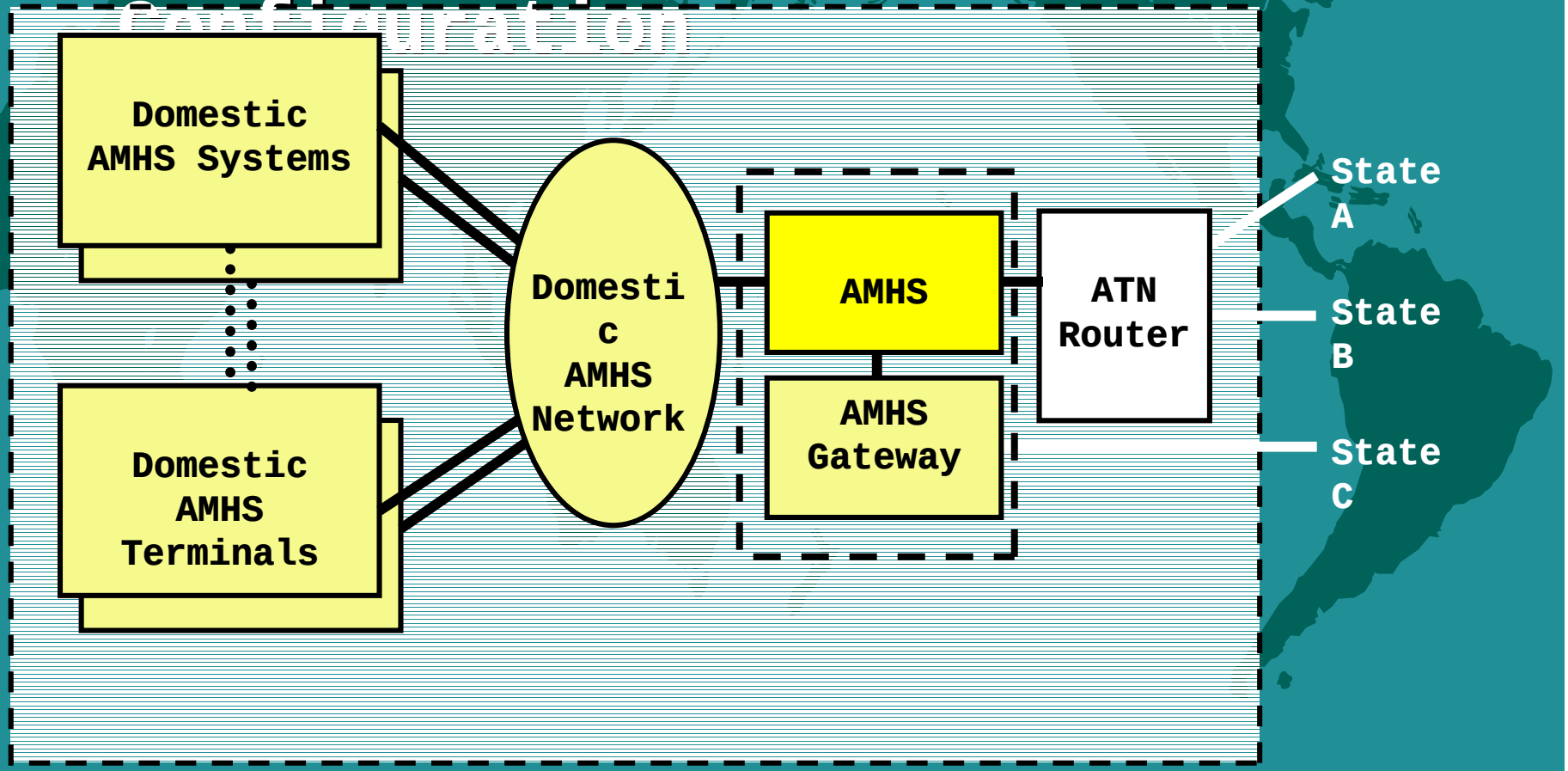
Regional AMHS Transition

- Phase-3 : ATS Message Server



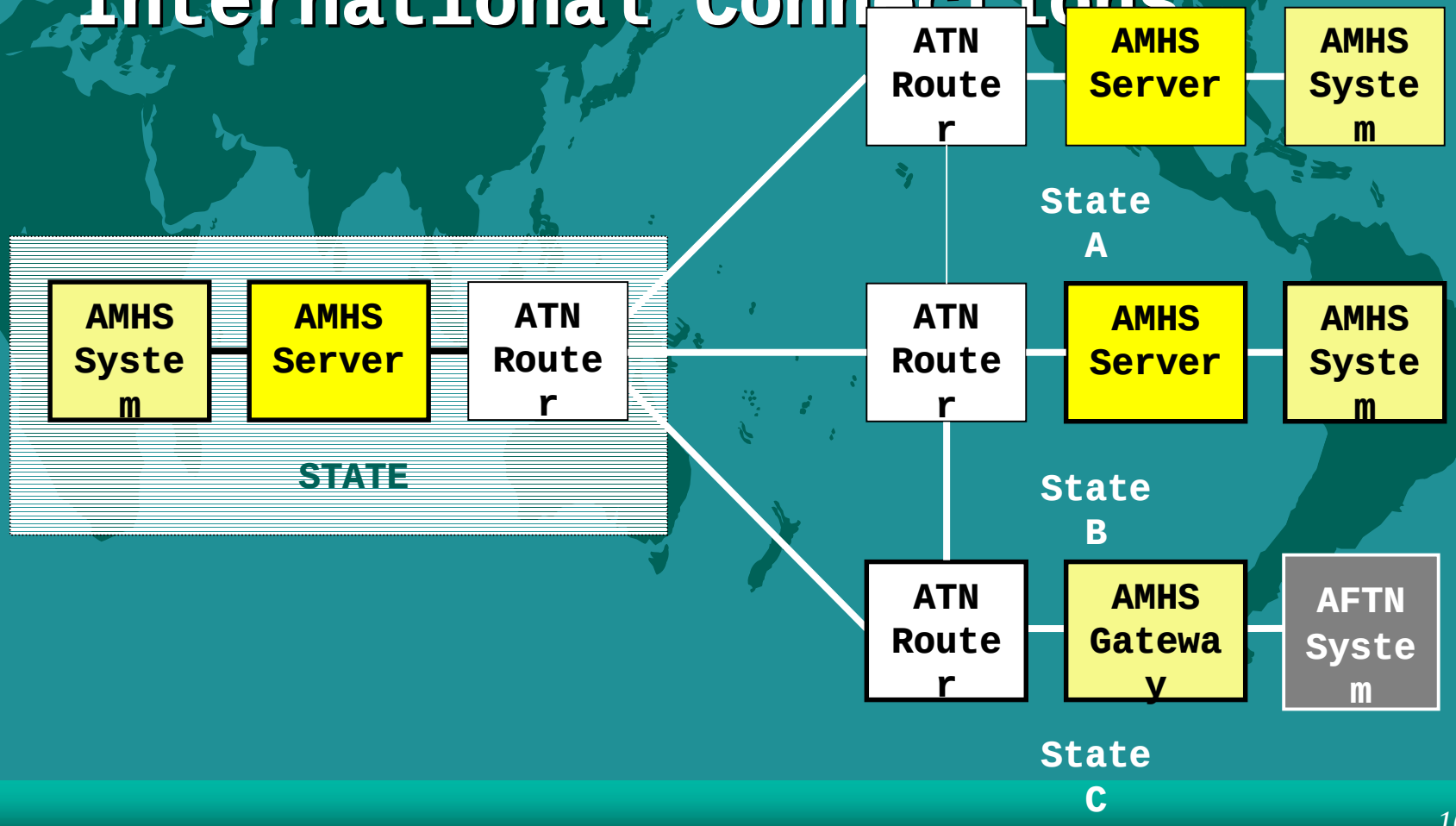
Regional AMHS Transition

- Phase-3 : Domestic Configuration



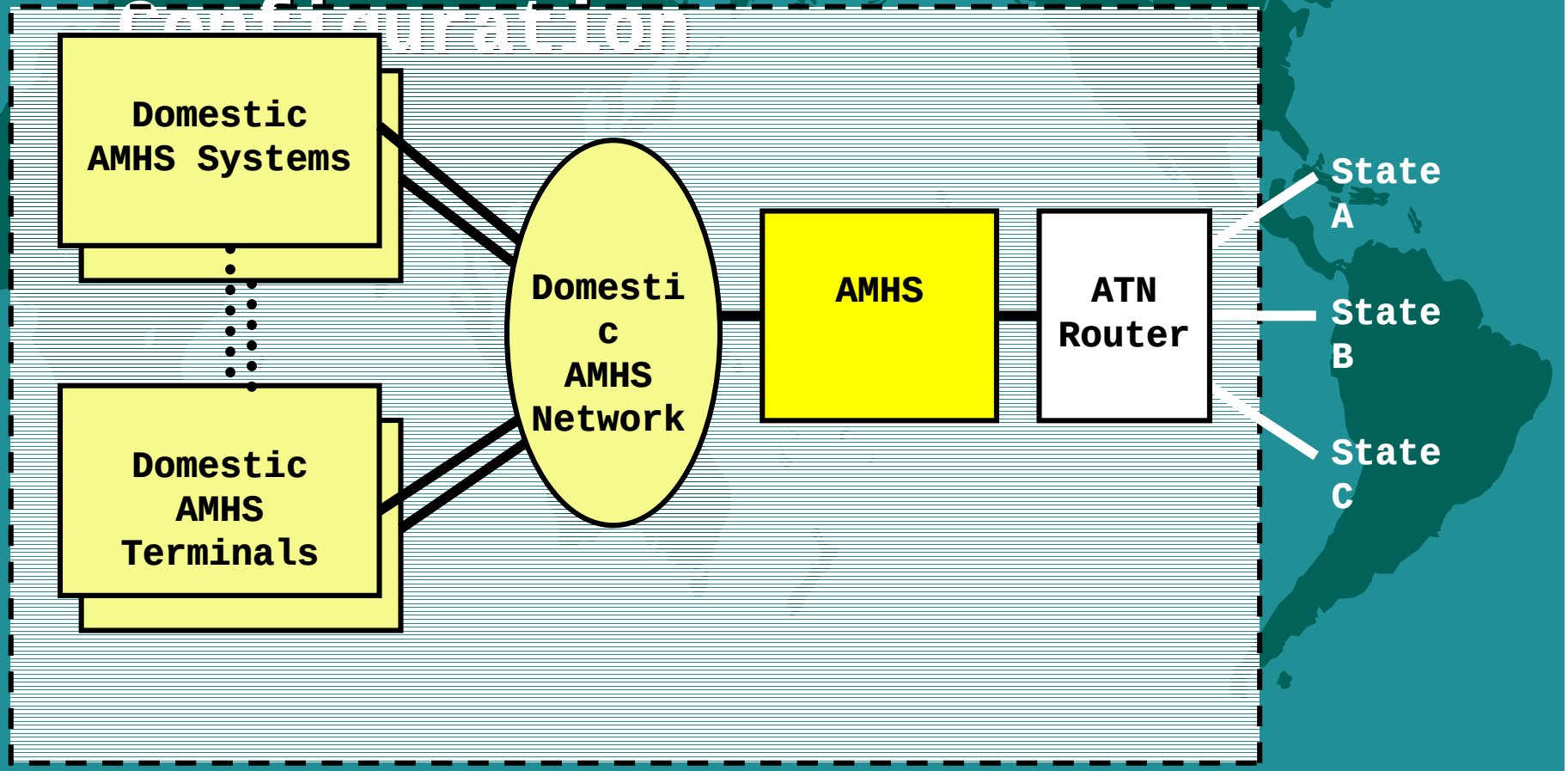
Regional AMHS Transition

- Phase-4 : Full AMHS International Connections



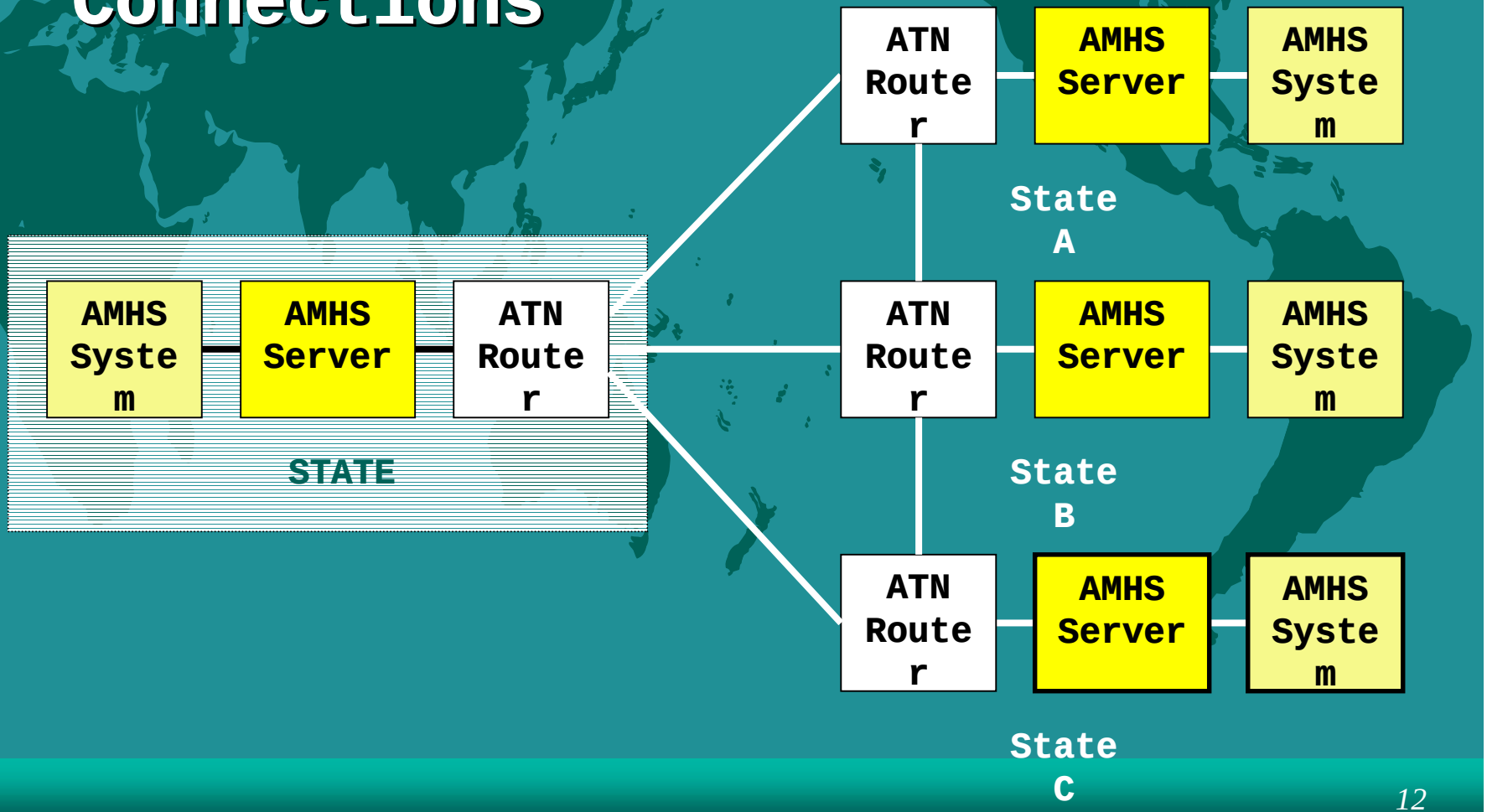
Regional AMHS Transition

- Phase-4 : Domestic Configuration



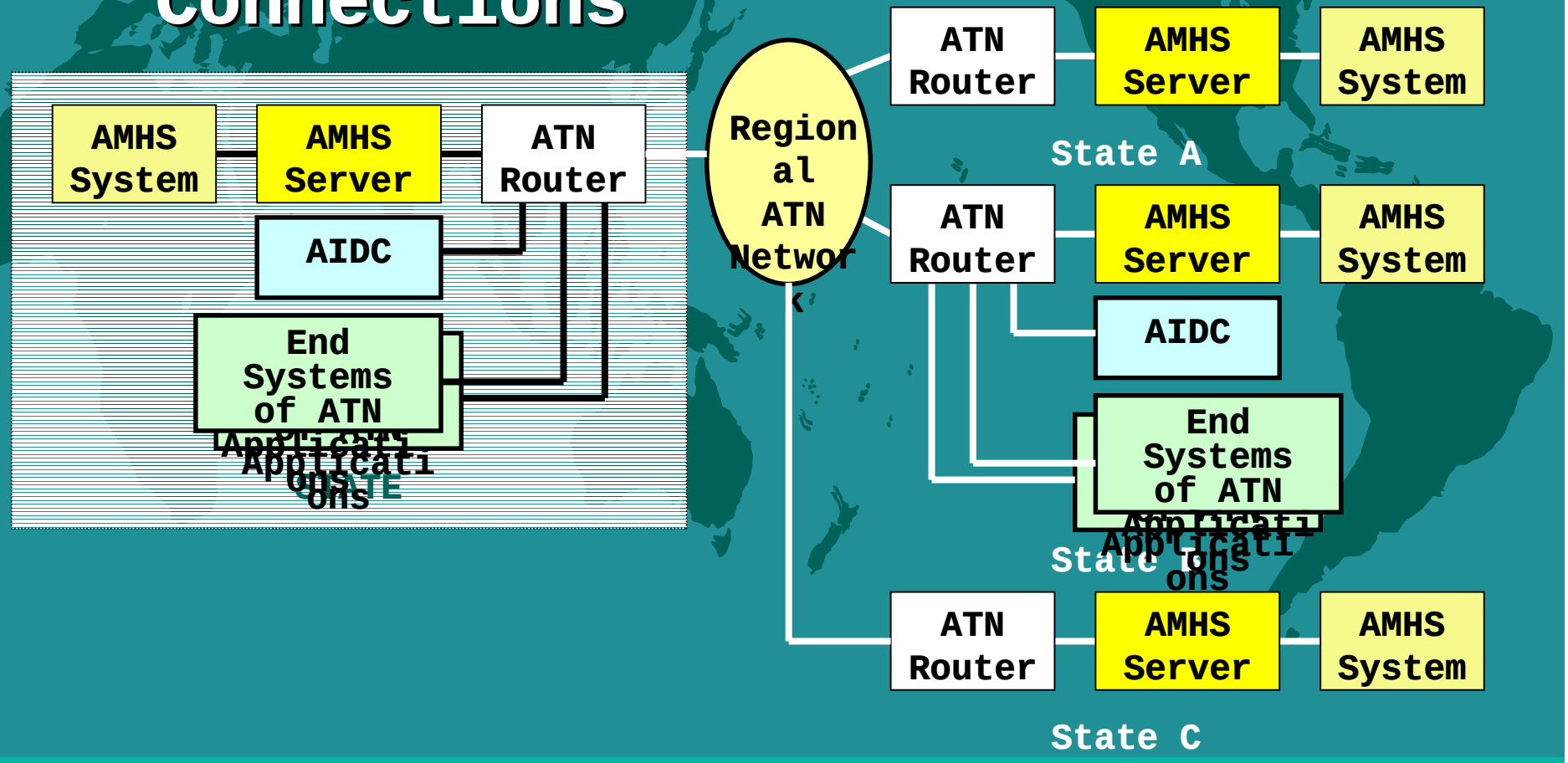
Regional AMHS Transition

- Phase-5 : Full AMHS Connections



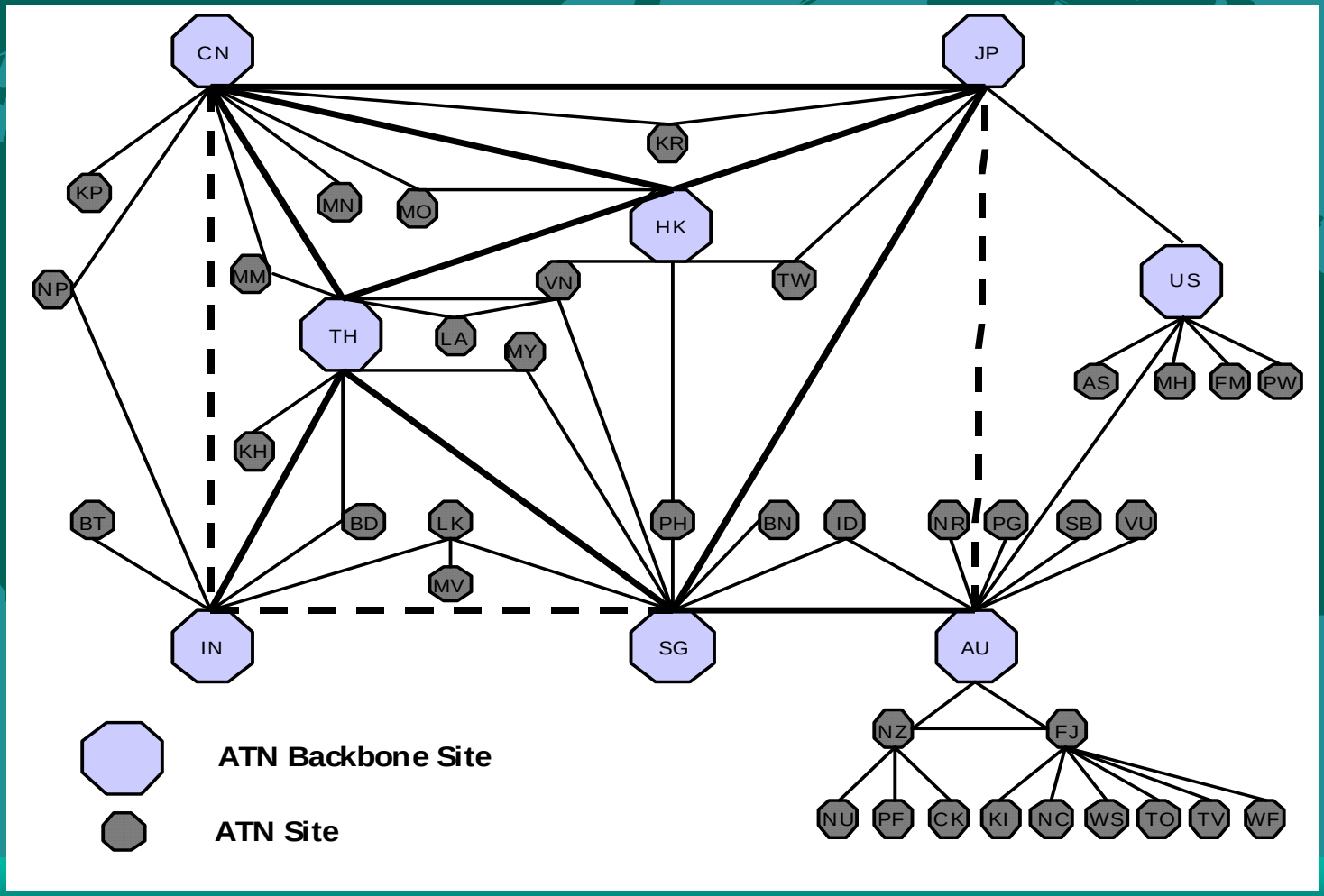
Regional AMHS Transition

- Phase-6 : Full ATN Connections



Regional AMHS Transition

- Regional ATN Network

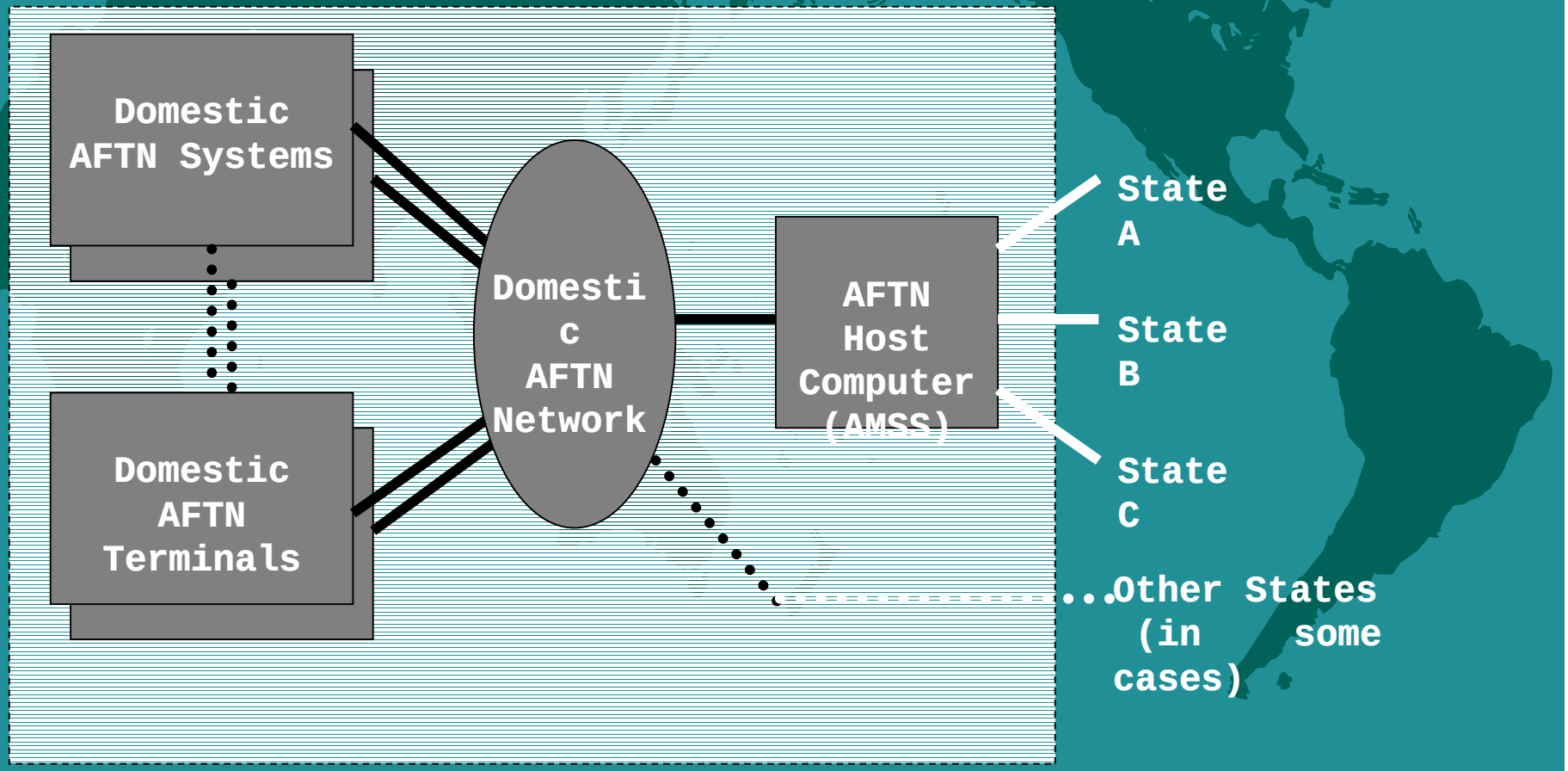


Domestic AMHS Transition

- Domestic Transition from AFTN to AMHS
  - AFTN Connections
  - AFTN Connections with AFTN/AMHS Gateway
  - AMHS Connections with AFTN/AMHS Gateway and ATS Message Server
  - AMHS Domestic Connection
- Some Other Cases
  - X.400 MHS (non ATN) Domestic Connection
  - TCP/IP (non ATN) Domestic Connection

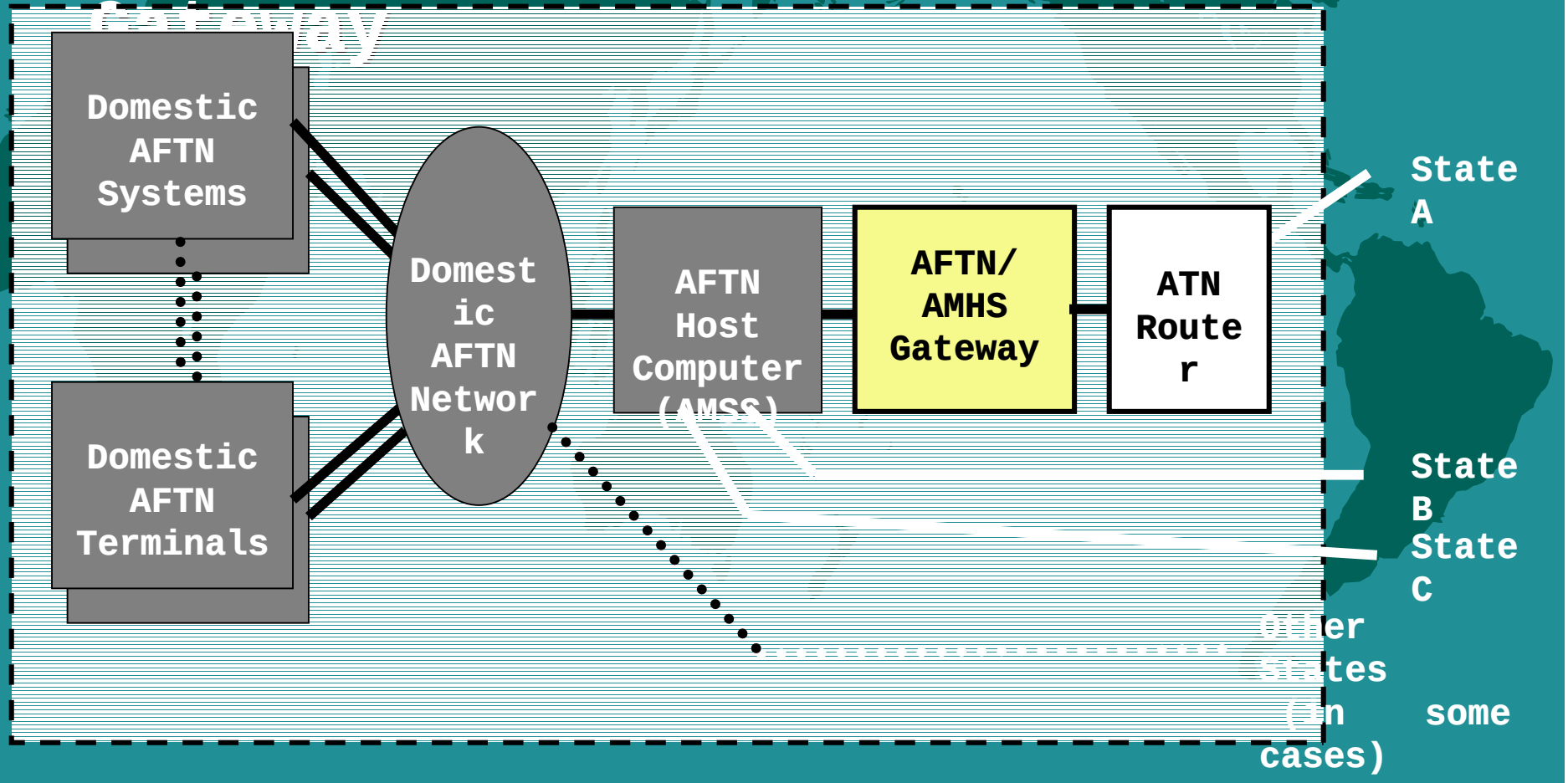
Domestic AMHS Transition

- AFTN Connections



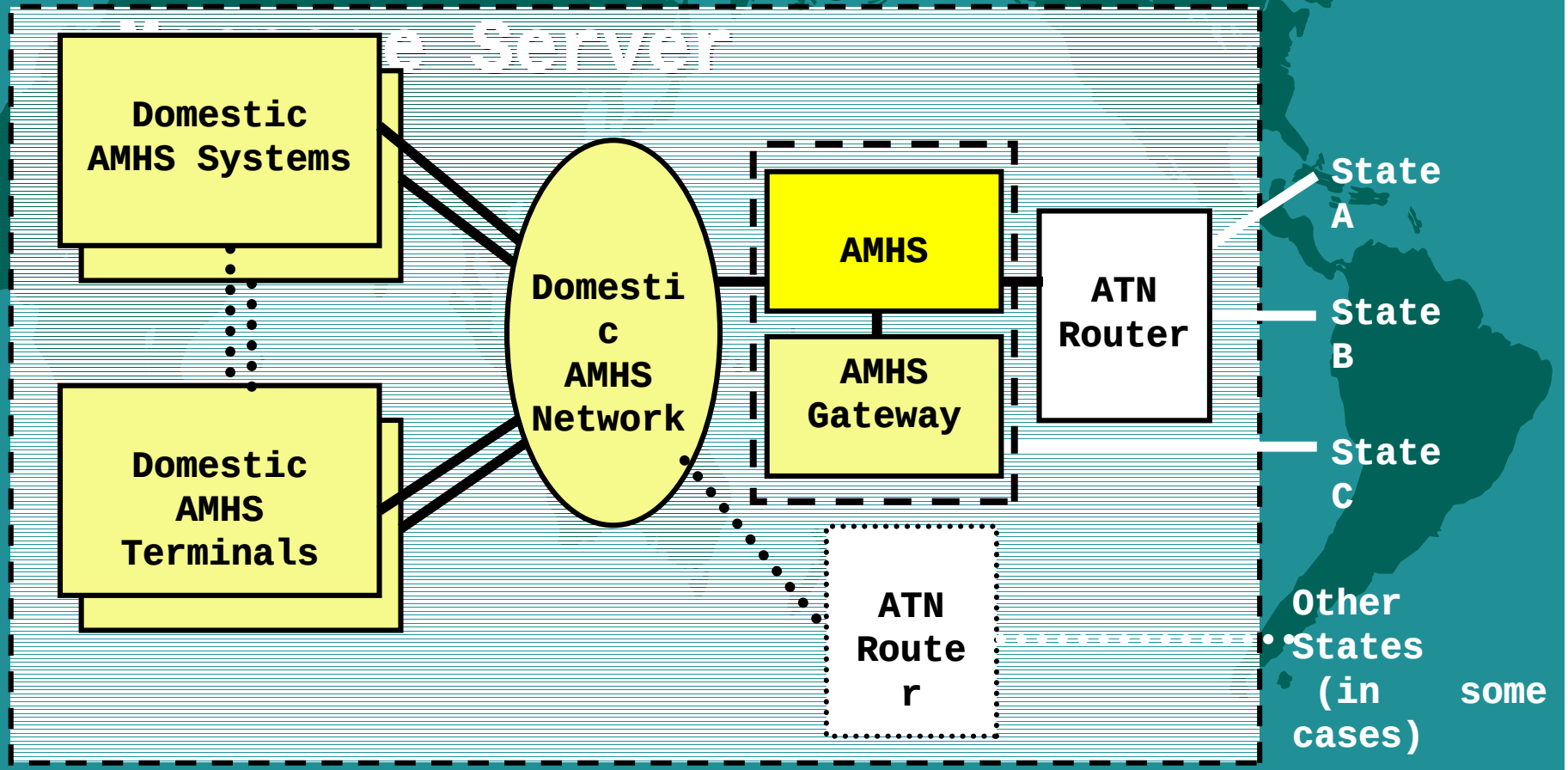
Domestic AMHS Transition

- AFTN Connections with AFTN/AMHS Gateway



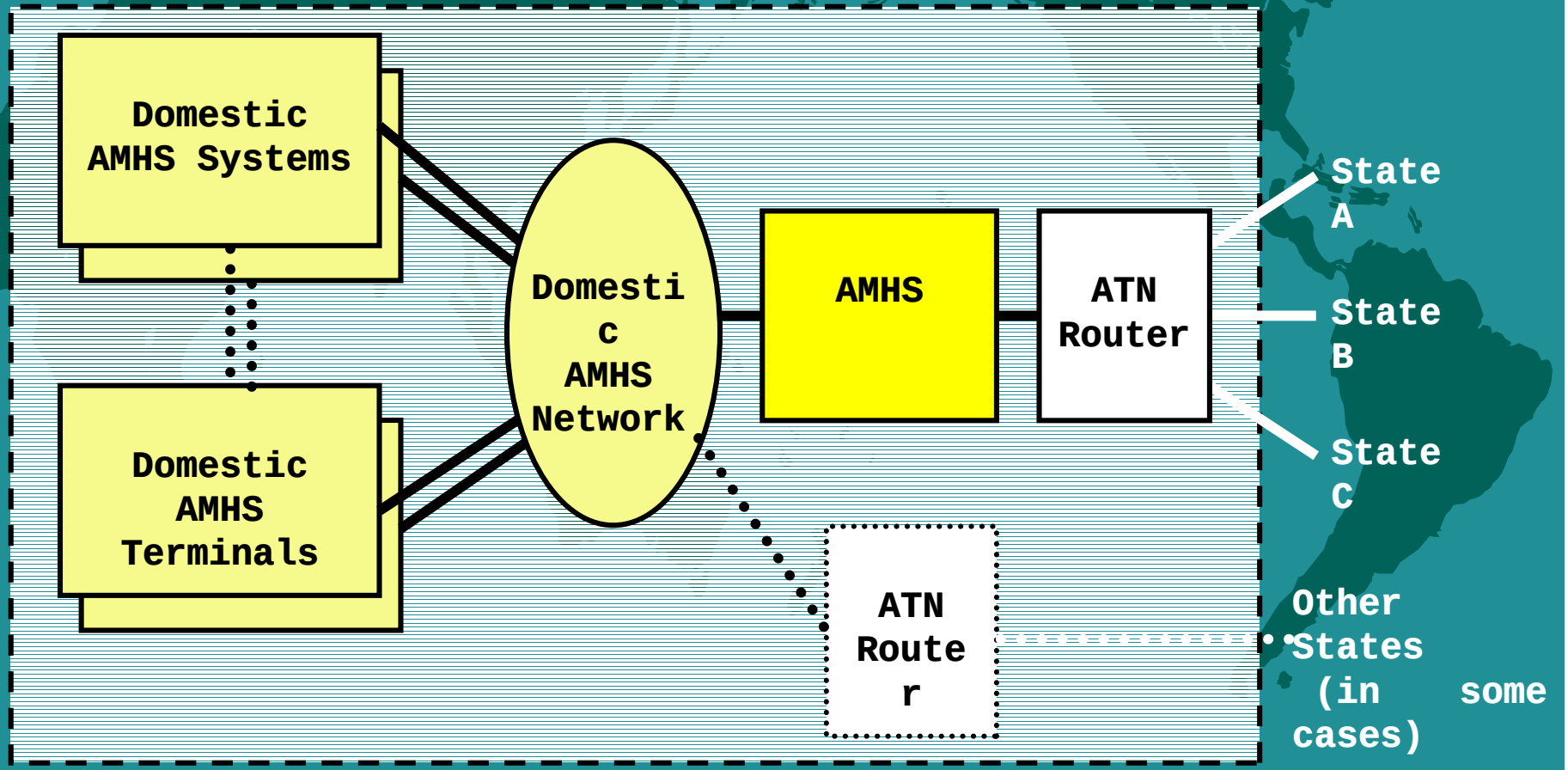
Domestic AMHS Transition

- AMHS Connections with AFTN/AMHS Gateway and ATS



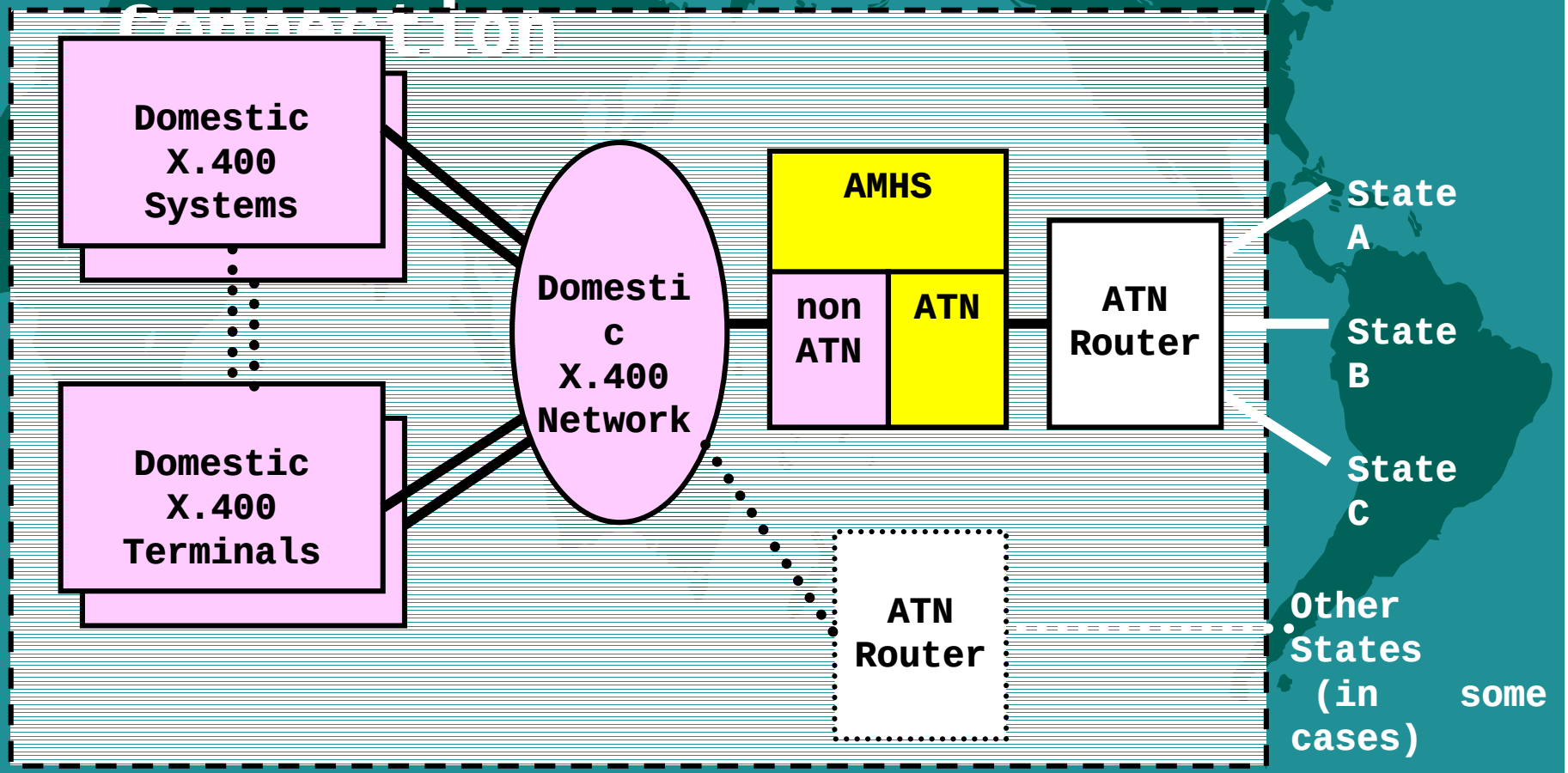
Domestic AMHS Transition

- AMHS Domestic Connection



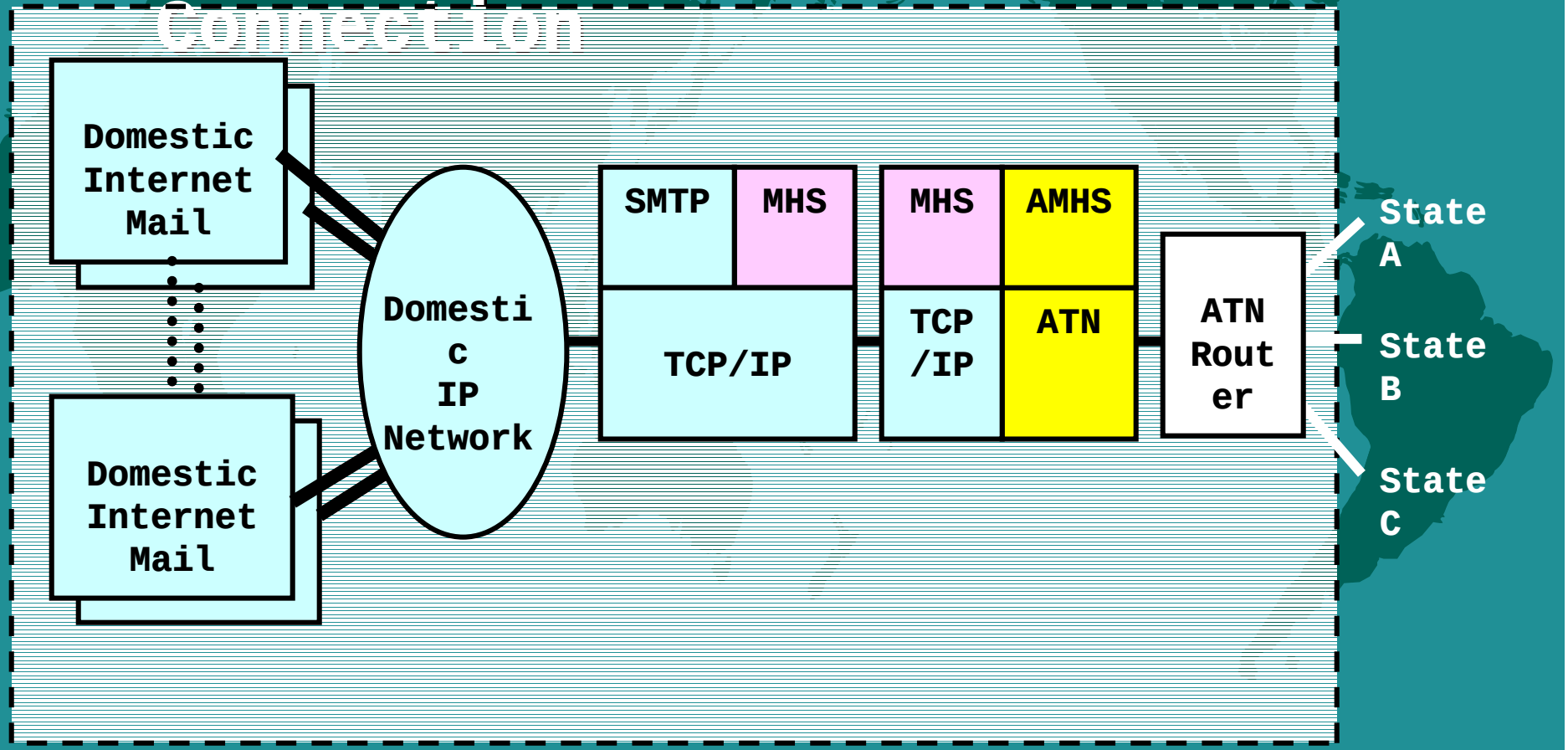
Domestic AMHS Transition

- X.400 MHS (non ATN) Domestic Connection



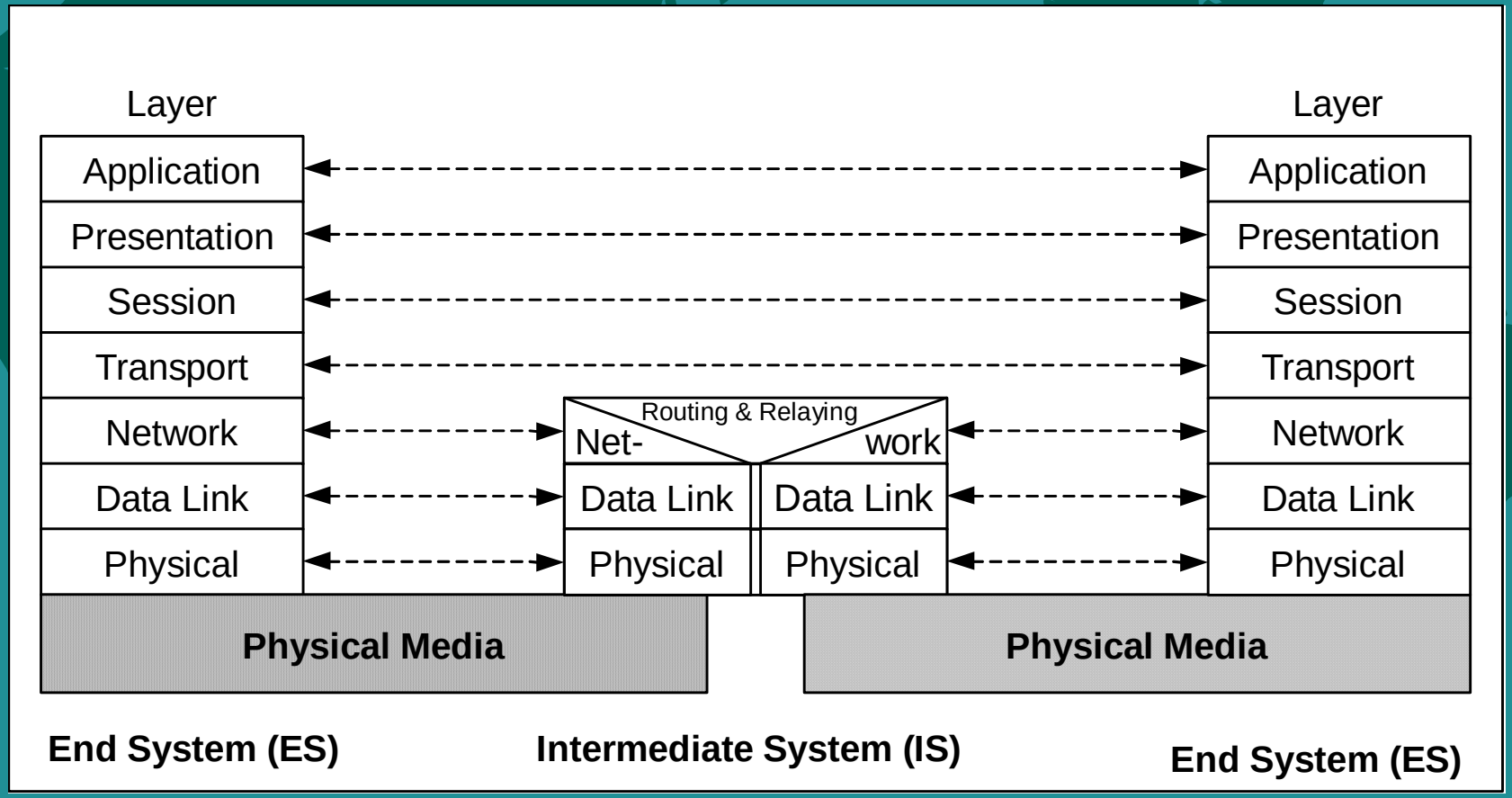
Domestic AMHS Transition

- TCP/IP (non ATN) Domestic Connection



Special Features of AMHS

- OSI Protocol Stack (7 Layers)



Special Features of AMHS

- Application Layer
  - Not X.400 but AMHS (Subset of X.400)
  - AFTN/AMHS Gateway
  - CIDIN/AMHS Gateway (not applicable)
- Transport and Network Layers
  - Support of Security and priority

Some Considerations

- AMHS or MHS (X.400)
  - AMHS for International Connections
- With or Without ATN Router
  - With ATN Router for future expandability
- Alternative route
  - Connection between more than three States
- Routing by ATN Router or AMHS
  - ATN Router : Internet level (implicit)
  - AMHS : Information level (explicit)

Some Considerations

- Requirements to AMHS System Supplier
  - Fully comply with ICAO ATN SARPs and regional AMHS ICD (detailed specification)
    - Full stack of ATN
    - Customized COTS products
    - ATN Router Interface
  - Reliable for 365days / 24hours operation
  - Well designed Human Machine Interface
  - Maintenance functions
    - Message Management, Statistics, Configuration, Monitoring, Message and Line Constraint, etc.

Conclusions

- AMHS is the replacement of AFTN
- AMHS must comply with ICAO ATN SARPs and Regional AMHS ICD
- ATN Router Connection is essential for the future flexibility and expandability
  - Regional ATN Network for both AMHS and other ATN Applications
- Close coordination between States is necessary for AMHS implementation

- Thank you for your kind attention -