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AAPA American Association of Port Authorities
Alliance of the Ports of Canada, the Caribbean, Latin America and the United States

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25 January 2014

SHIFTING INTERNATIONAL TRADE ROUTES - Reefer

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People 39,800

Offices 160

Latin America	
MEXICO	COSTA RICA
COLOMBIA	ECUADOR
PERU	CHILE
ARGENTINA	BRAZIL

Countries 49

Ports and Terminals All continents

Corporate Goal ZERO HARM

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Which direction from here? Confused?

Topics

BIG PICTURE – THE REEFER INDUSTRY

BIG SHIPS AND THE CANAL EXPANSION

WHAT'S ON THE HORIZON

Reefer trade = large and global, and bouncing back from 2008

- 95 m tons of fresh produce transported by sea in 2013
  - Equivalent to 3.1 million 40’ full High Cube reefer containers
- Ocean transport of fresh produce accounts for 2.5% of the worldwide seaborne trade
- Reefer container fleet reached 2.3 million TEU in 2013.
- The start of 2013 saw full ships and high rates - highest level since 2008.

Source: Dynamar

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Seatrade is #1 & the top 10 have half of the conventional reefer ships

Rank	Operator	Operated fleet		Capacity Share
		Ships	Total cu. ft	
1	Seatrade	65	31,541,000	15%
2	NYKCool	23	13,756,000	7%
3	Baltic Reefers	22	11,874,000	6%
4	Frigoship	39	11,733,000	6%
5	GreenSea	41	11,286,000	5%
6	Network Shipping	24	10,679,000	5%
7	Star Reefers	17	9,114,000	4%
8	Great White Fleet	10	5,906,000	3%
9	Africa Express	8	4,679,000	2%
10	Fyffes/Geest	8	4,563,000	2%
TOP TEN		257	**93,559,000**	**55%**
GRAND TOTAL			**208,690,000**	**100%**

Source: Dynamar

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Latin America is the biggest trade lane, with the most carriers

Trade lane	Number of		Ships		Total TEUs	Weekly TEUs
	Services	Carriers	Number	Avg TEU		
Latin America	62	29	454	4,300	1,949,300	266,600
Southern Africa	20	17	186	4,800	893,900	96,000
Australasia	30	24	185	3,800	709,500	114,000
Total	108	38	778	4,100	3,202,200	442,800

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More containerized reefers and South-North traffic in recent years

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- **Increased containerization due to convenience & economics**
  - Reefer container capacity exceeds conventional space by 4.5x
  - Conventional reefer capacity is expected to be cut in half by 2023.
  - Chiquita claims to have saved $12m in making the switch to containers. Dole has moved to container ships on some routes.
- **Increased importance of South-North routes.**
  - 780 container vessels plied these routes in 2013, an increase of 46 in one year. All ships on this route combine for 443,000 TEUs.
  - Includes the world's largest reefer ships, operated by Hamburg Sud.
  - Panama Canal is critical to these routes.

Source: Dynamar

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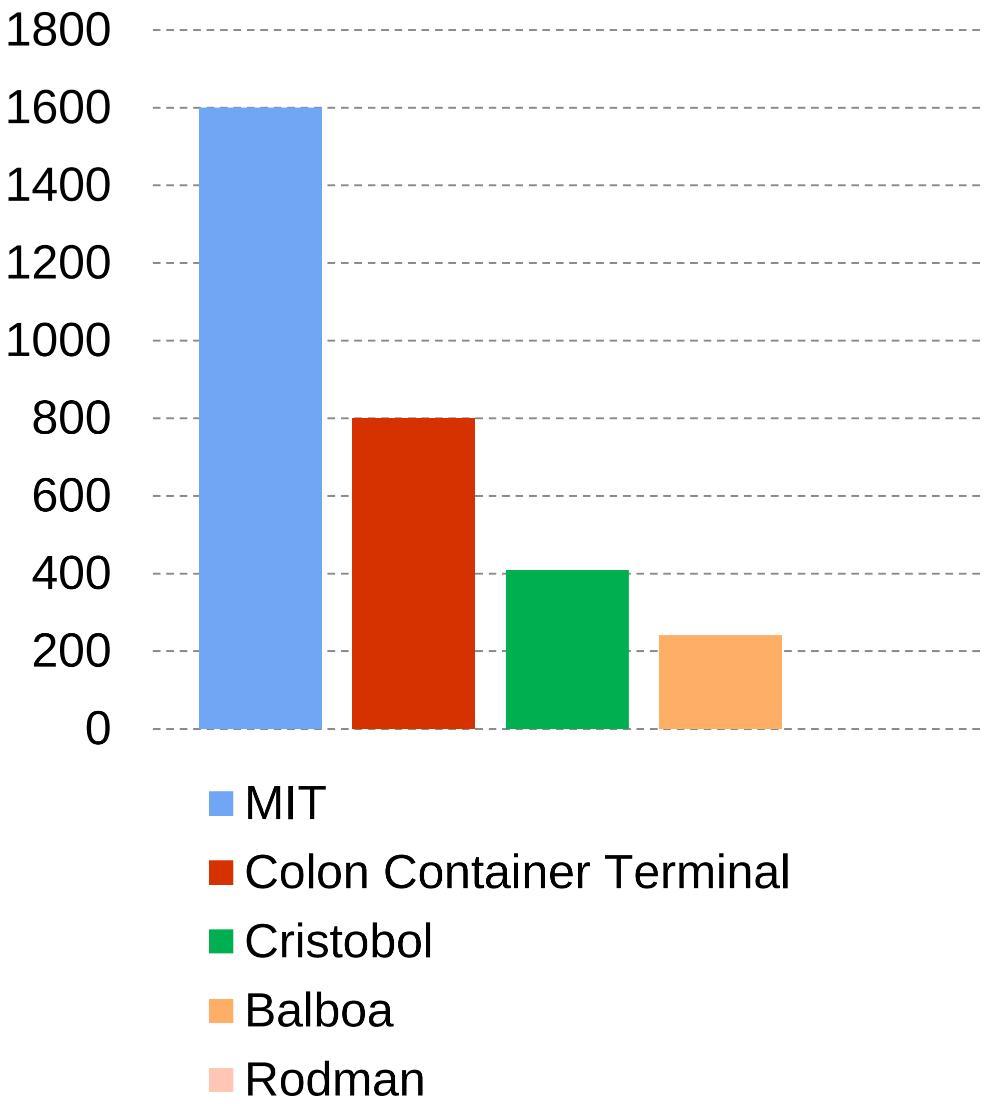
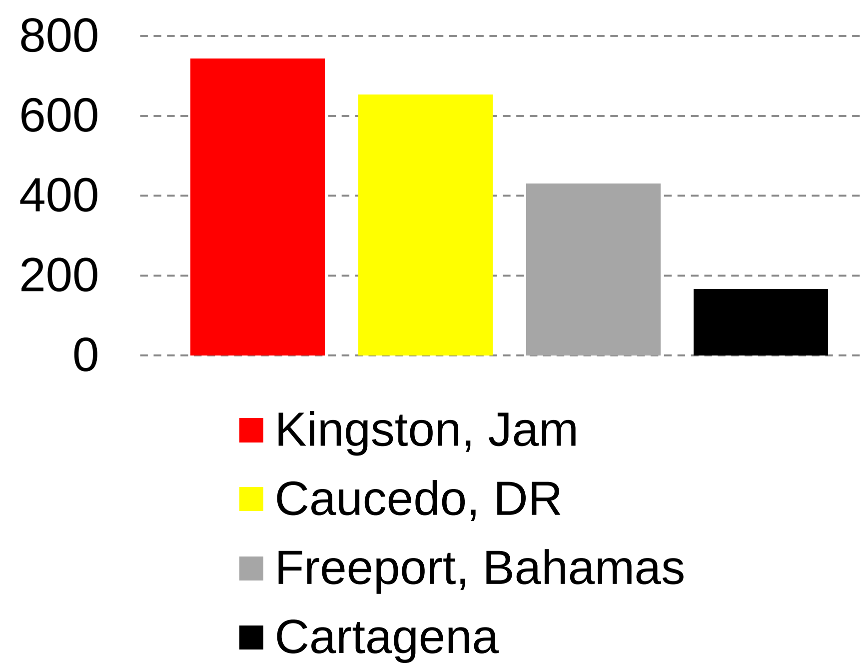
Panama is currently more of a reefer hub than the Caribbean



10-12% of Canal traffic is reefer



Source: port websites

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For a typical Asia-USEC voyage, shifting to an 8000 TEU vessel expands the market reach of the USEC ports.

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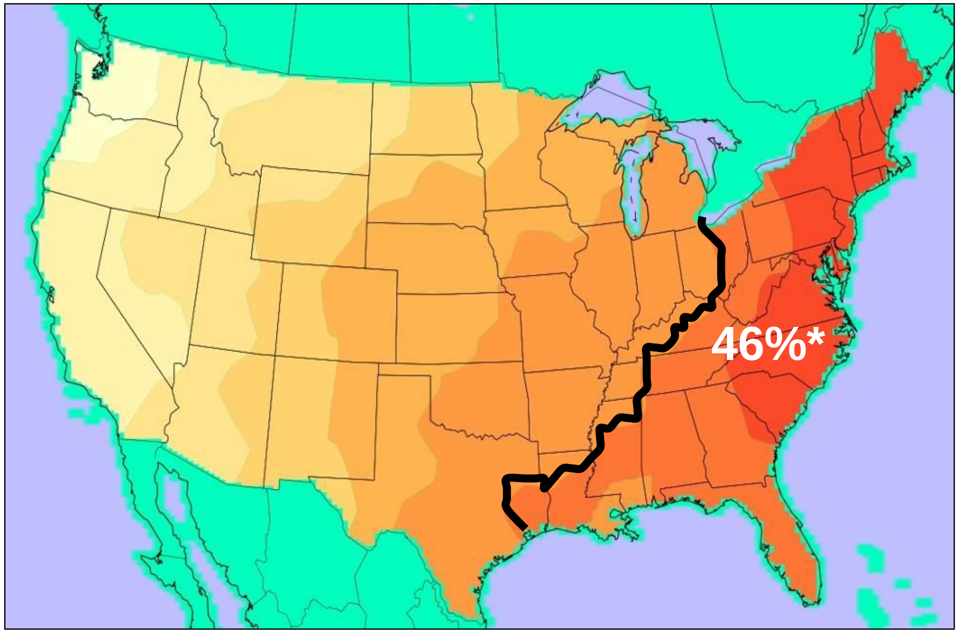
Assumptions
- $400/MT bunker
- Canal tolls based on new 2011 rates
- Ship charter rates, Dec 2010
- Inland move by rail

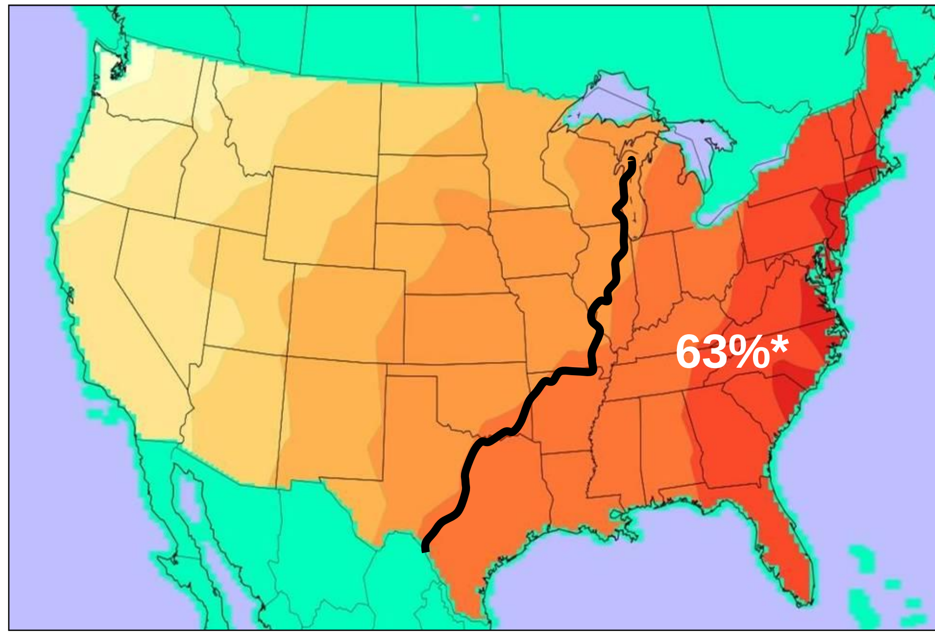
NOW

4000 TEU ship



2015

8000 TEU ship



Intermodal Advantage | -1250 | -1000 | -750 | -600 | -250 | 0 | 250 | Canal Advantage

*Share of the US population reachable by rail

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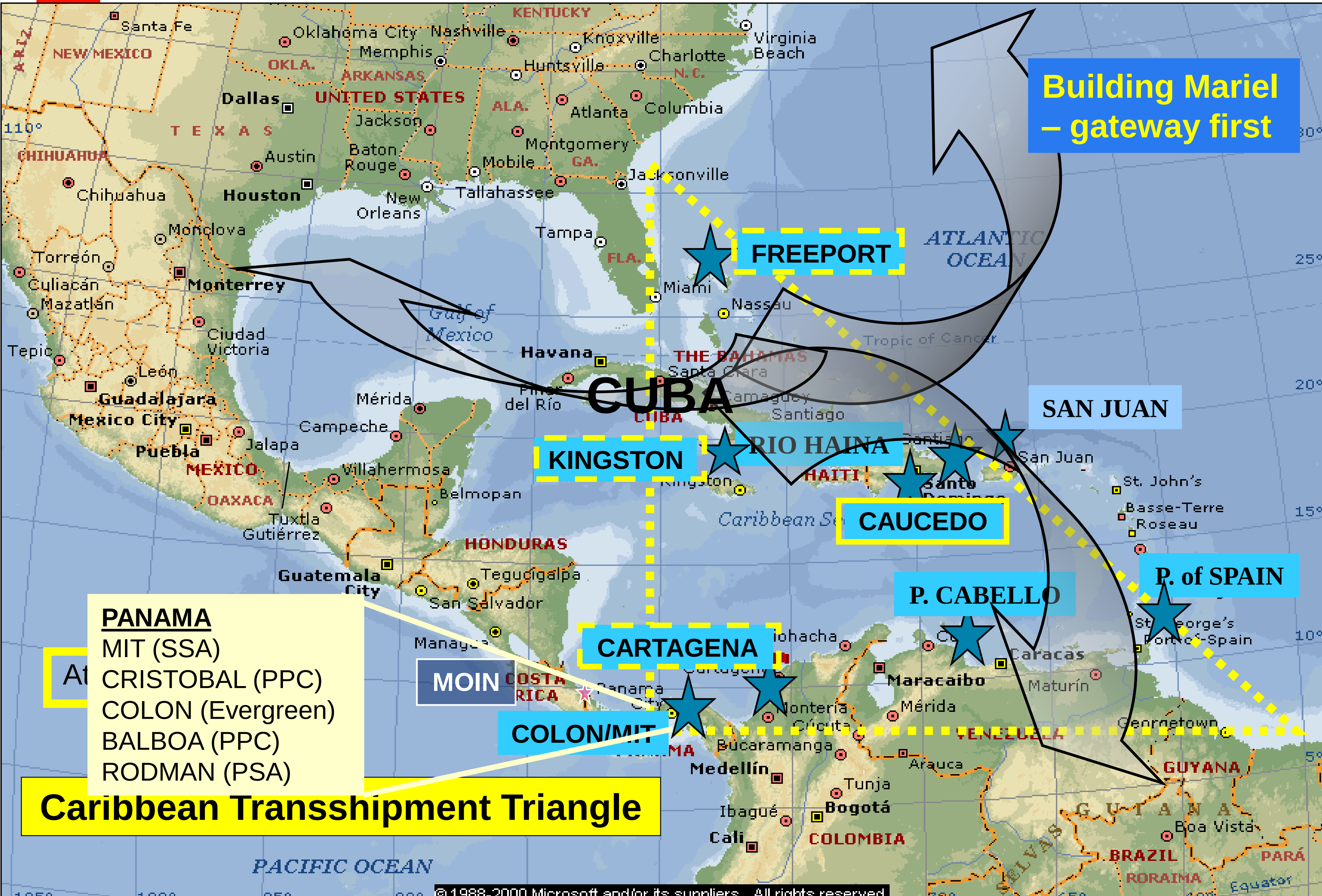
The Caribbean Transshipment Triangle is alive and well.



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Shipping lines seem to be thinking the same thing!

Put the biggest ships possible through the expanded Canal

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Nicaragua - growing source of reefer products

- Fish
  - Snapper
  - Grouper
- Shrimp
- Spiny lobster
- USA and Mexico = main markets

Nicaragua exports more than 10000 kg of fish and seafood (fresh and frozen) to the USA and Mexico each year

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Nicaragua Red Snapper

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After

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Miami – El Bluff – Belize – Miami makes sense for reefer trade

Distance: 357 NM (410 Miles)

Time at sea: 6.8 days

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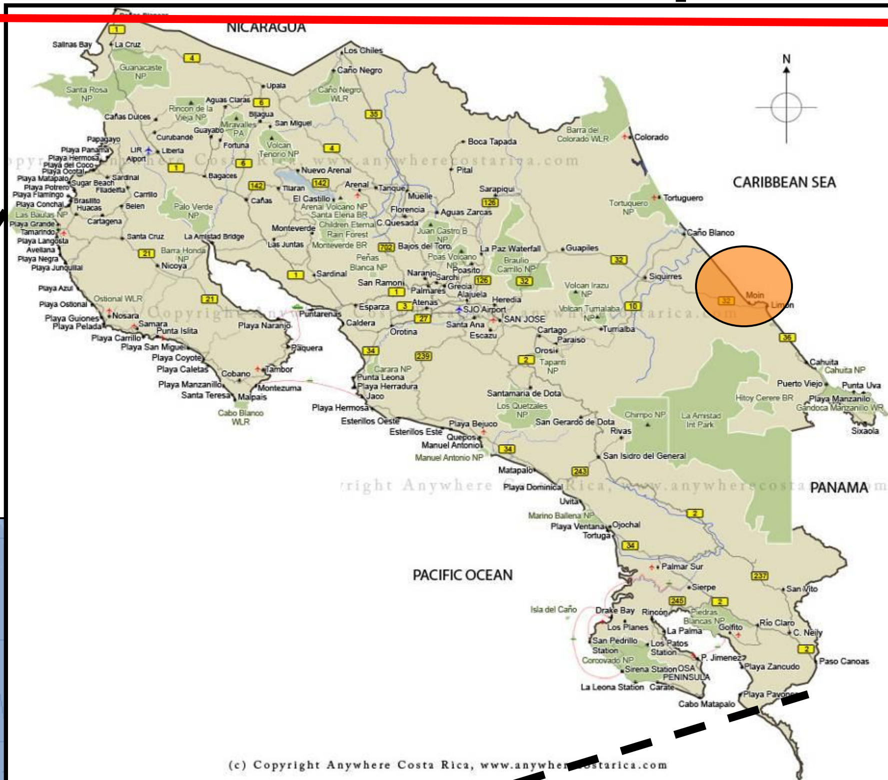
Moín – Limón, Costa Rica
A new modern reefer port

- $992 million by APM Terminals
- Designed for 100% domestic cargo only – but transshipment is possible
- Concession signed in August, 2011
- 1.2M TEU in Year 1 (2015)
- It's all about <u>productivity</u>



A sub-hub transshipment point?

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Atlantic – Lock Head

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Atlantic - Entrance Cofferdam

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Pacific Lock Excavation

Pacific - Culverts

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Conclusions

- Growth in Caribbean transshipment is inevitable for reefer
- Competition will be tough
- Panama is key
- Go for it

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Success!!