

# 2005 Executive Management Conference

May 2, 2005

Saddlebrook Conference Center, Tampa, FL



# Planning for Future Transportation Technological Change

M. John Vickerman

Principal

Norfolk, Virginia



# Agenda

- **Port & Intermodal External Industry Pressures**
- **International Maritime Cargo Demand Trends**
- **International Port Productivity Comparisons**
- **Maritime Vessel Technology Trends**
- **Fast Ship Technologies**
- **North American Domestic Truck Growth**
- **US Class I Rail & Intermodal Growth**
- **Domestic Intermodal Technologies**
- **Emerging Information Technologies (IT)**

***In A Highly Competitive Environment,  
The Solution Will Take...***



***A Collaborative Team Effort With  
Many Talents Working Together***

# Maritime Trade: Current Course & Direction?

**Cargo Demands,  
Capacity, Funding, &  
Productivity Concerns**



**Your Port**



**Planned  
Craney Island  
Marine Terminal**

***Today's Container Port....***

***May Look Quite Different Tomorrow***

# North American Clipper Ship



# Vessel Cargo Handling Circa 1950

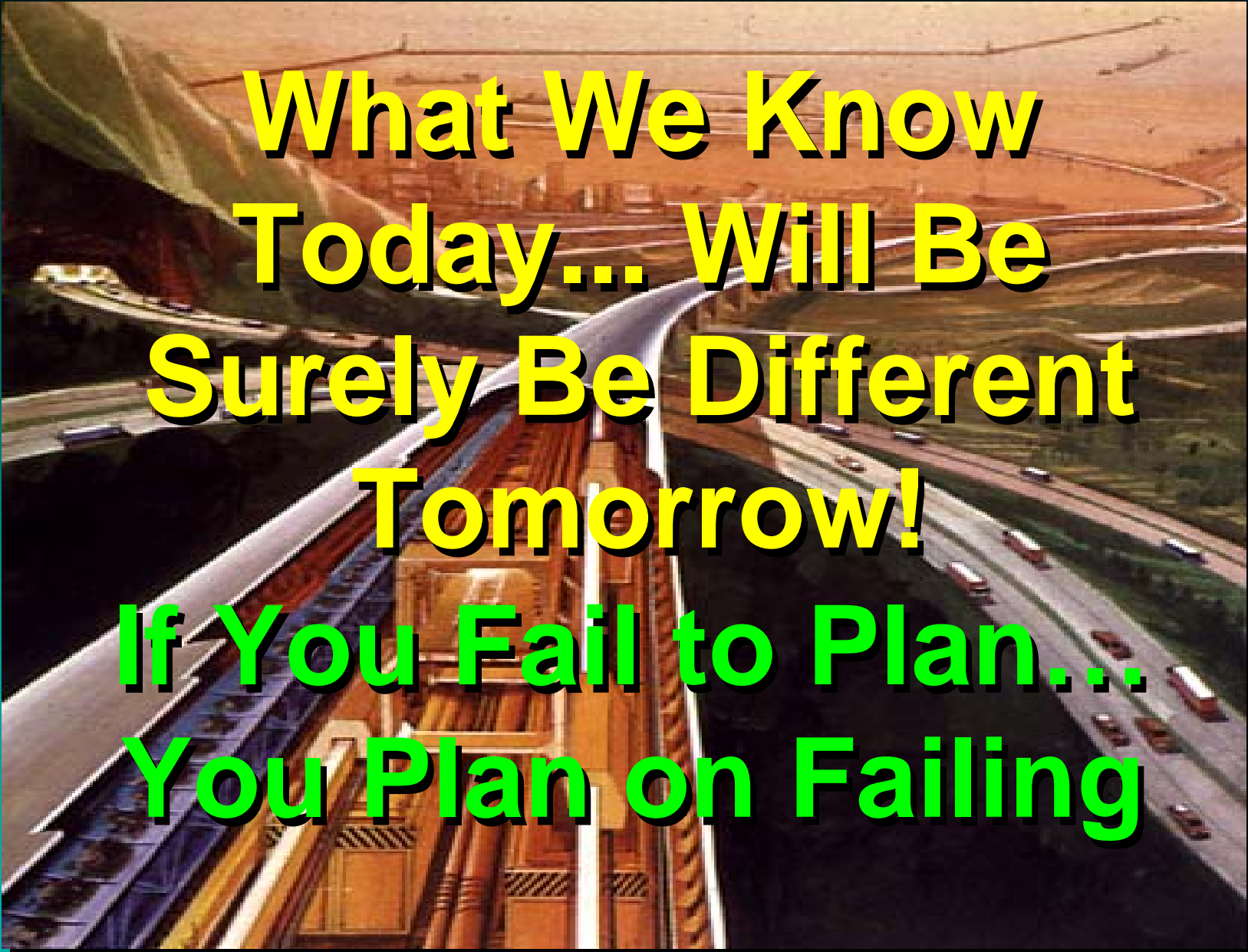




**Cargo Handling Circa 2005**

# US Navy Fast Frigate Circa 2035





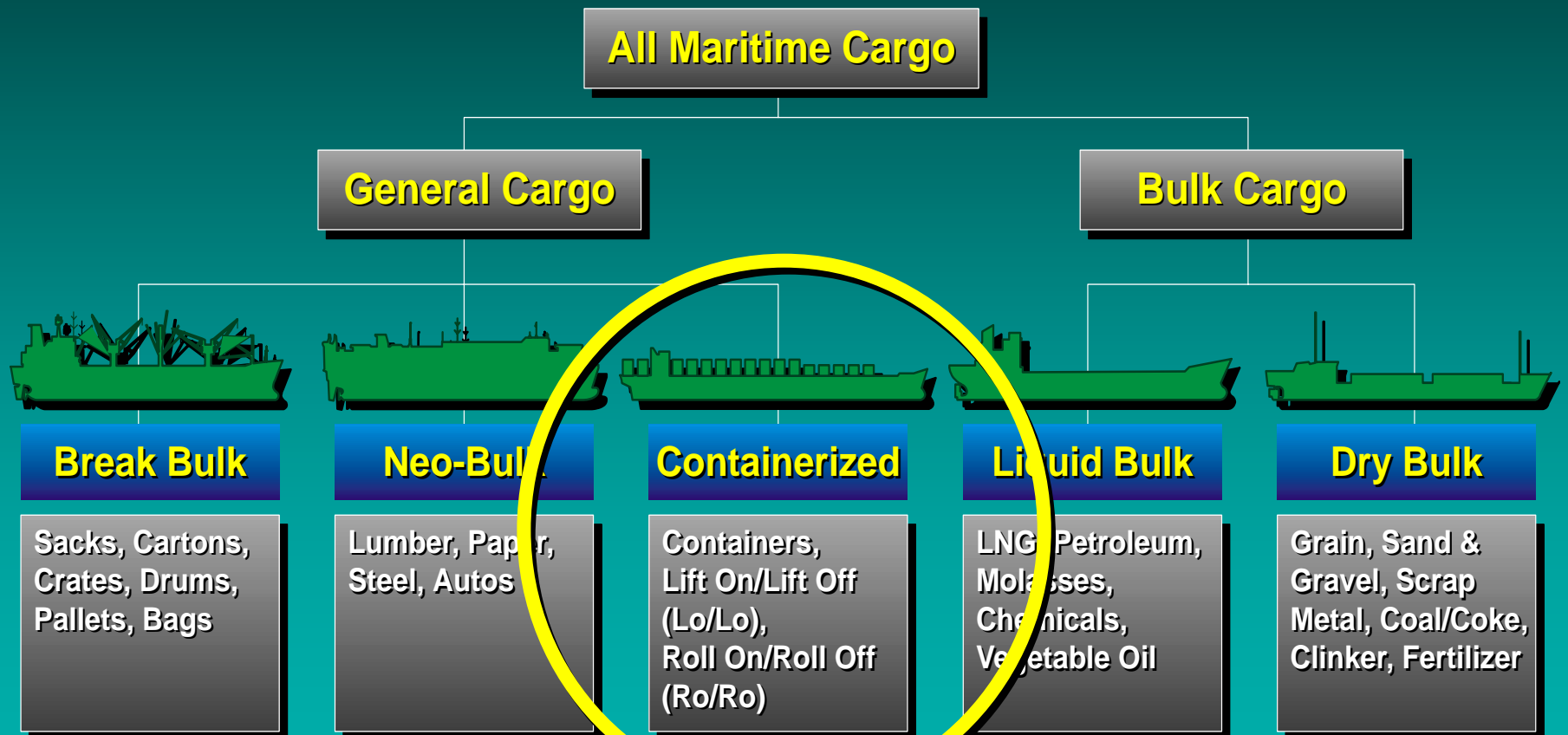
**What We Know  
Today... Will Be  
Surely Be Different  
Tomorrow!**

**If You Fail to Plan...  
You Plan on Failing**

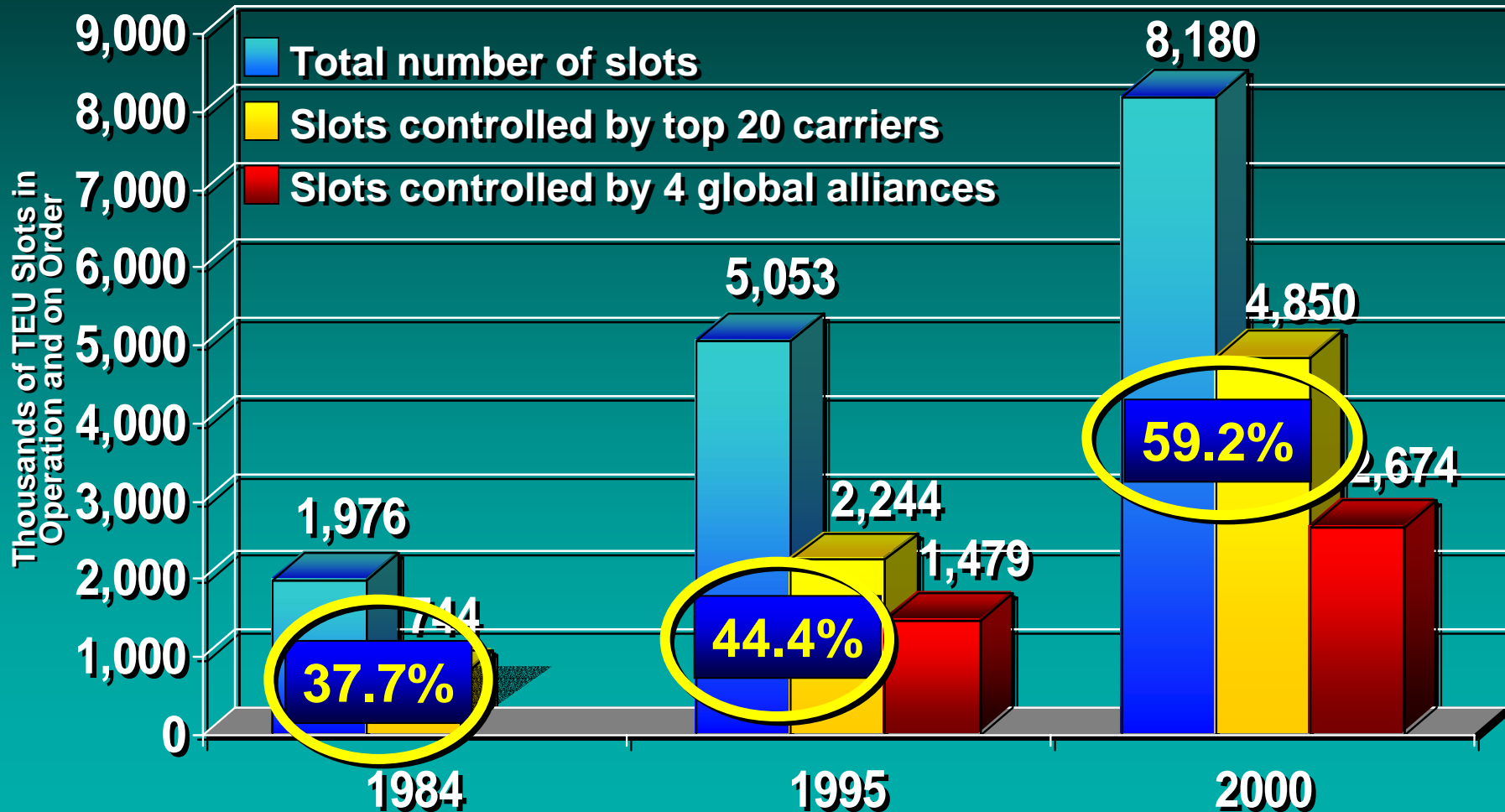


**To Be Competitive  
Today... Marine/Intermodal  
Terminals Must Reduce  
Throughput Cost &  
Increase Cargo Velocity...  
Securely**

# Functional Classification of Global Maritime Cargoes




# The Container Industry Continues to Consolidate...




A large, powerful blue wave crashing over a rocky shore. The water is a deep, vibrant blue, and the white foam of the wave is prominent. The background shows a rocky coastline under a bright sky.

# **Port & Intermodal External Industry Pressures**

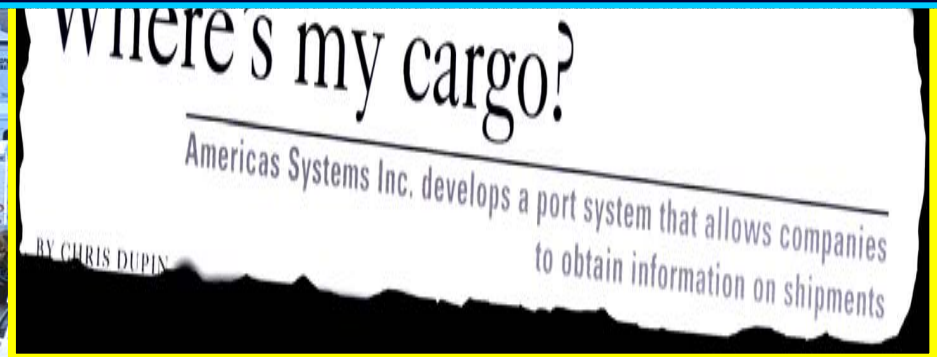


***The North American Freight Paradox:  
The Nation's Ports and Their Intermodal  
Linkages are Experiencing the  
"Best of Times and the Worst of Times"  
in Terms of Growth and Demands on Capacity***



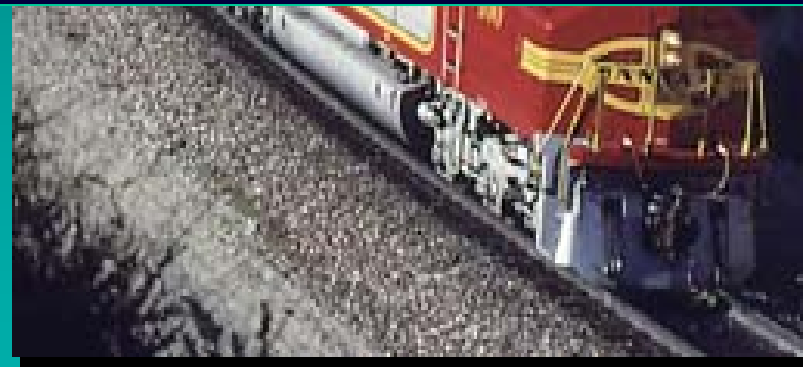
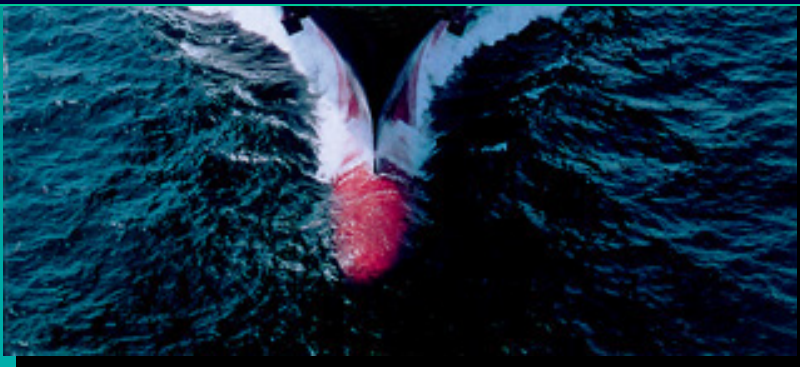


**At Current Productivity and Growth Levels by 2020  
North American Ports & Their Associated  
Intermodal Systems Will Be Severely Congested**





**We do not have an “intermodal system” as such. Rather we have an aggregation of multiple, private and public modes, each of which are “stove-piped” within their own individual areas of interest with little or no true cross communication and collaboration.**



**Major North American container gateway terminals will continue to see ever increasing volumes of container cargo...  
*with no capacity solution insight!***

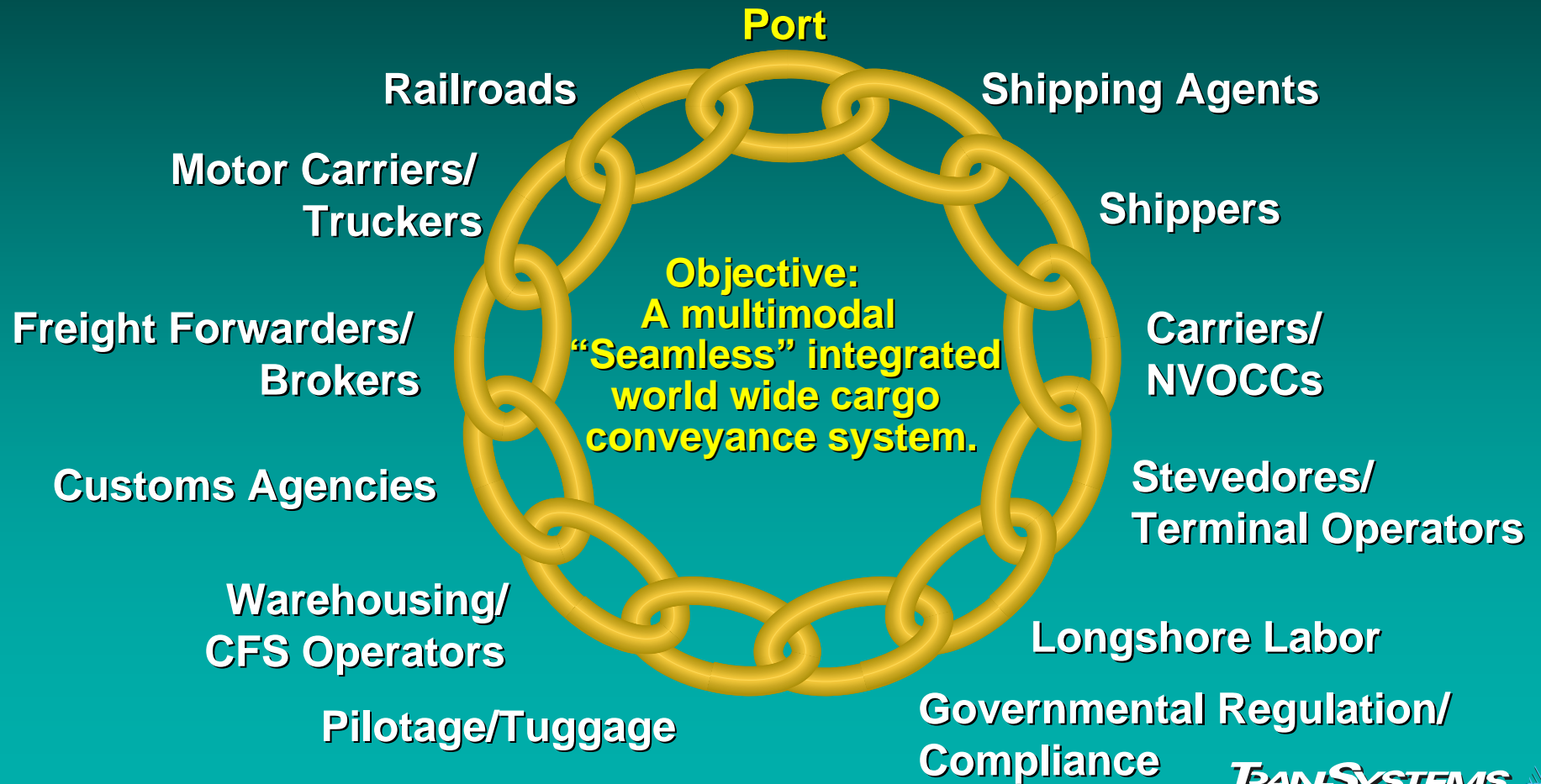


A photograph of an iceberg floating in the ocean. The visible tip of the iceberg is small and white against a blue sky and sea. The much larger, submerged part of the iceberg is visible below the water line, illustrating the concept of hidden capacity issues.

***US Port Capacity  
Concerns are the  
Tip of Our Freight  
Logistics  
Challenge***

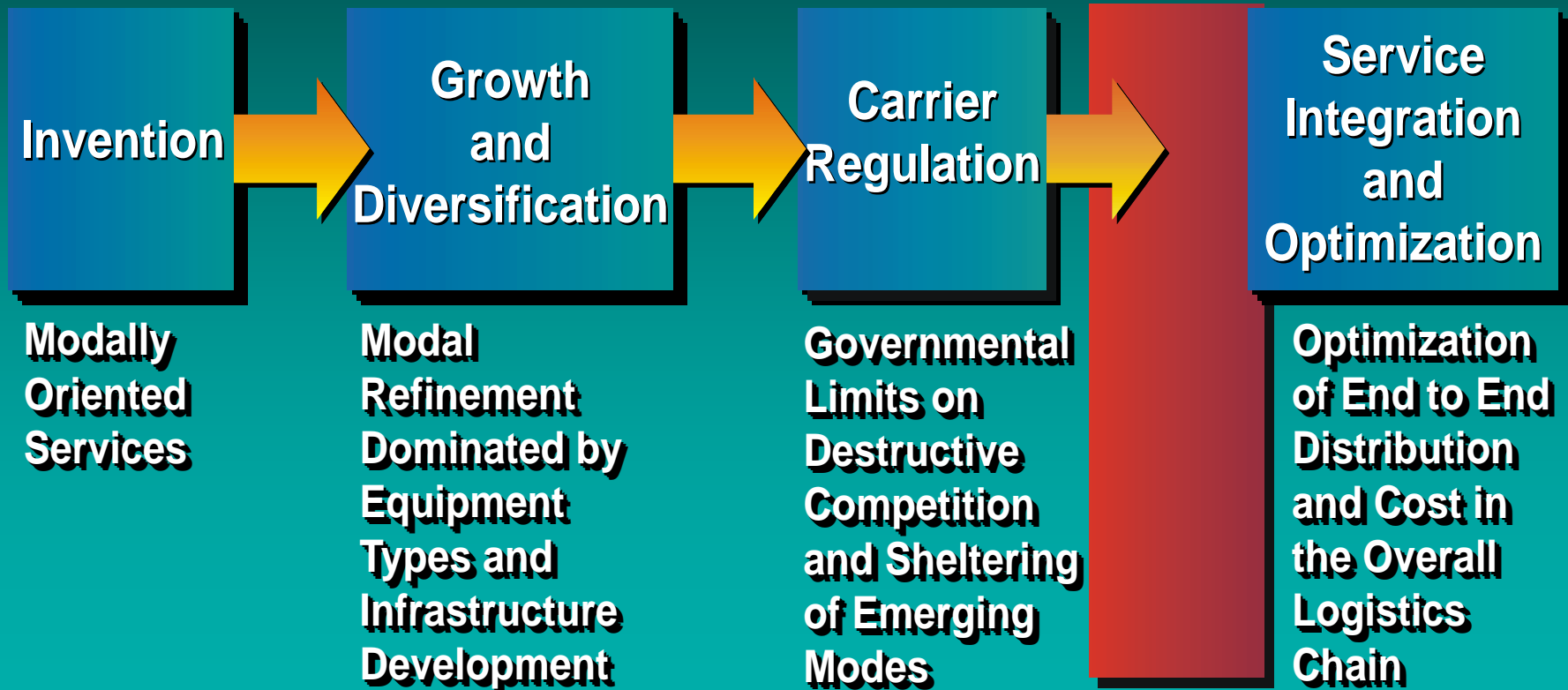
# The "Port"

One of the Many Diverse Constituencies  
in the Cargo Transportation Logistics Chain

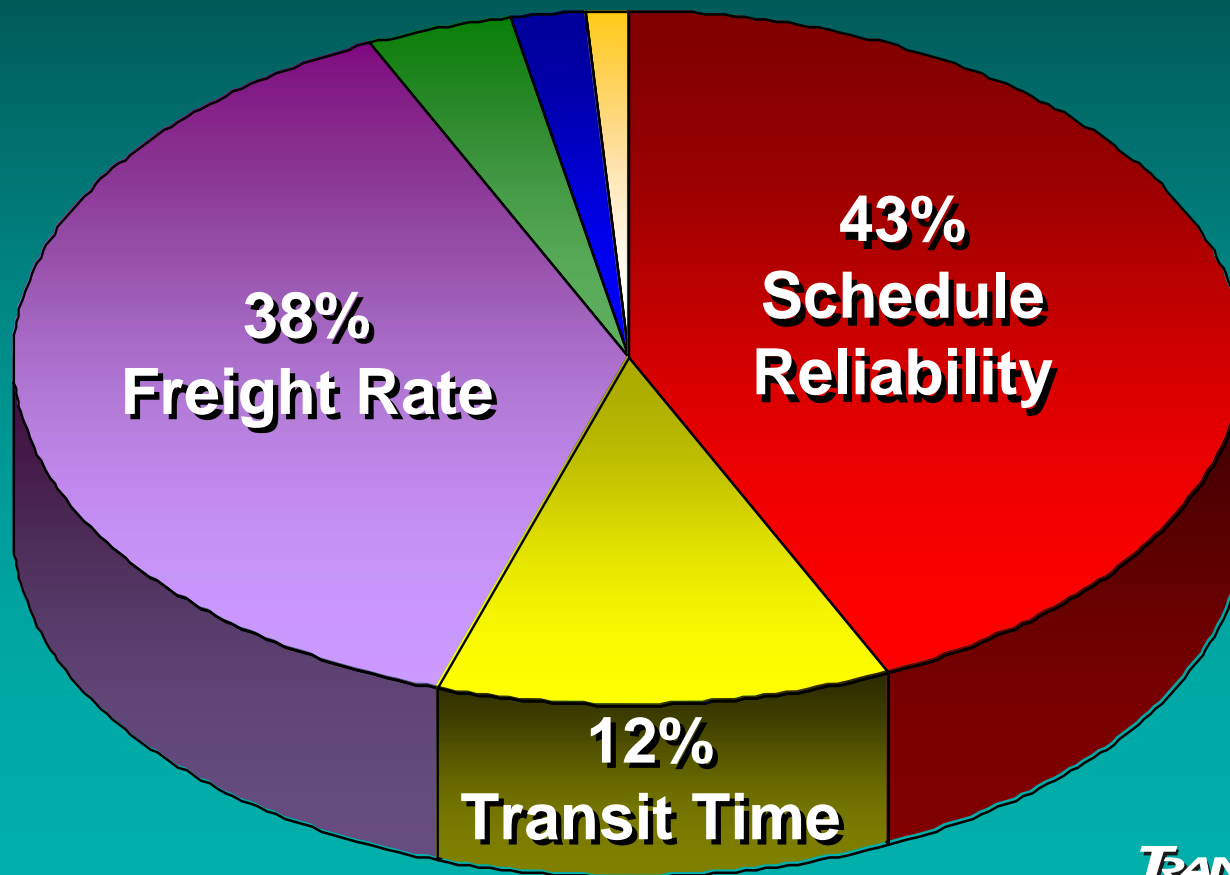


# The Evolutionary Phases of Marine/Intermodal Freight Transportation

## Transportation Deregulation



# Poll of the Top 1000 “Blue Chip” Multinational Shipper Priorities



# Today's Logistics Truth:

*“The customer  
wants **more** and  
is willing to pay  
**less** for it.”*

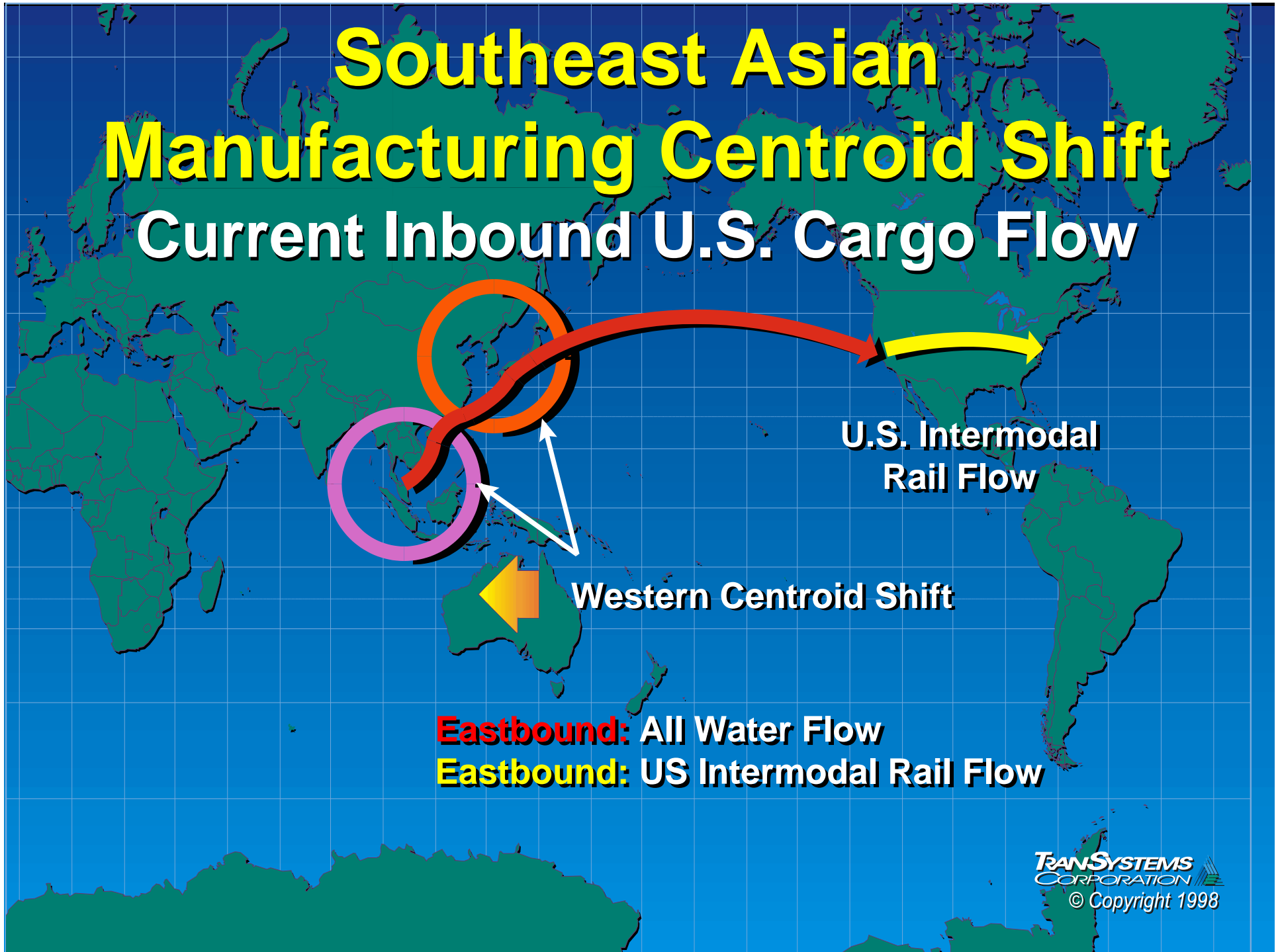
# Today's Logistics Truths

***“Inland costs represent 75% of an ocean container shipping line's total cost.”***

Source: Gunther Casjens  
CEO Hapag-Lloyd

# Southeast Asian Manufacturing Centroid Shift

## Current Inbound U.S. Cargo Flow



U.S. Intermodal  
Rail Flow

Western Centroid Shift

**Eastbound:** All Water Flow

**Eastbound:** US Intermodal Rail Flow

# Southeast Asian Manufacturing Centroid Shift

## Current Inbound U.S. Cargo Flow



U.S. Intermodal  
Rail Flow

Western  
Centroid  
Shift

**Westbound All Water/Suez Flow**  
**Westbound Intermodal U.S. Flow**

# Freeport Container Port (FCP) Freeport, Bahamas North American Transshipment Center



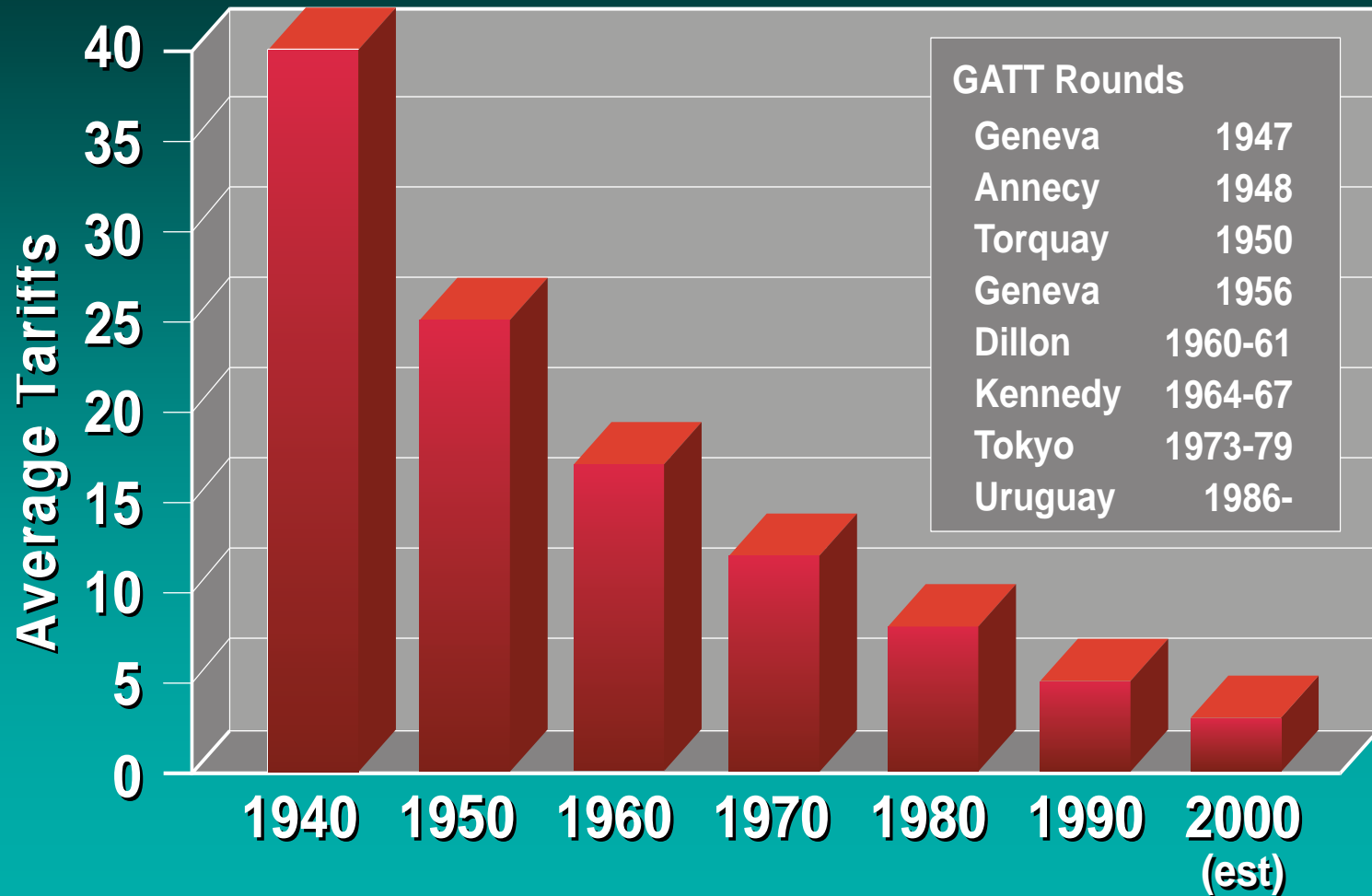
# Port Productivity & Port Security Are Not Mutually Exclusive





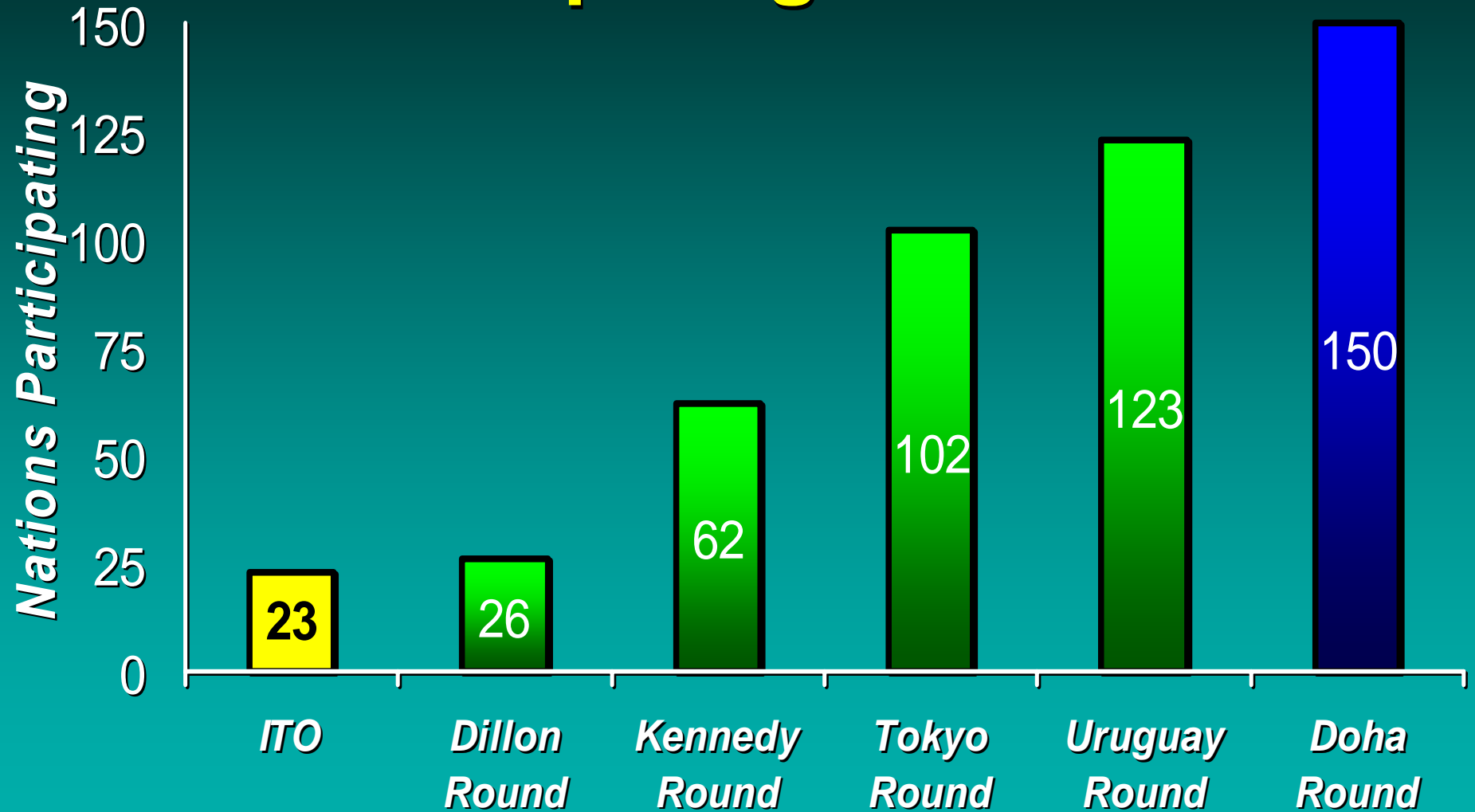
# **International Maritime Cargo Demand Trends**

# WTO/GATT Historic Tariff Reductions



Source: Centre for International Economics; GATT

# WTO/GATT International Trade Participating Nations



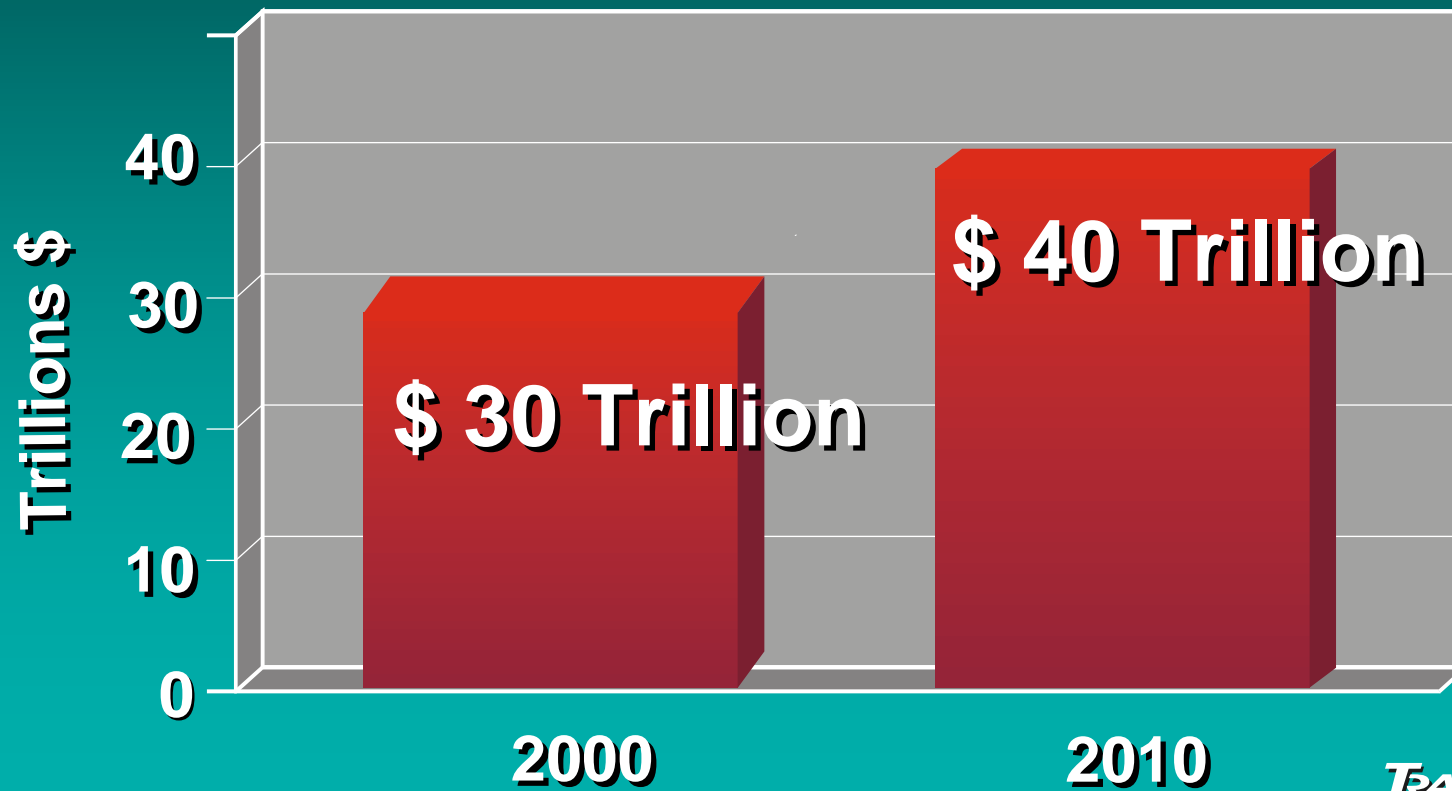
■ ITO ■ GATT ■ WTO

TRANSYSTEMS CORPORATION

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# World Bank's 2010 "Global Economic Prospects"

World Output will Increase 33% in 10 years



# World Container Gateways

## "The World's Top 12 Gateways"

31 M TEUs by 2011

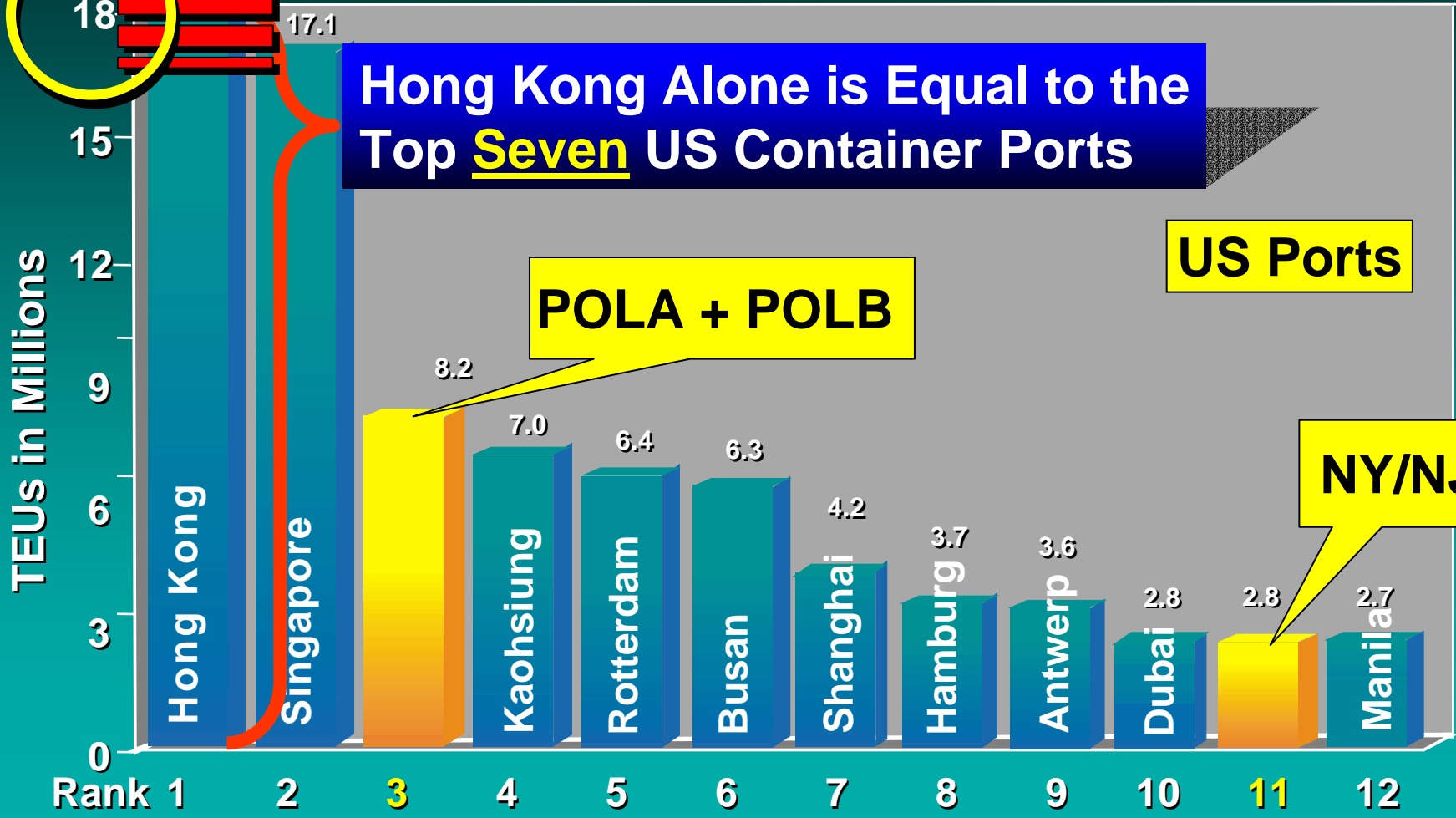
18

Hong Kong Alone is Equal to the Top Seven US Container Ports

US Ports

POLA + POLB

NY/NJ



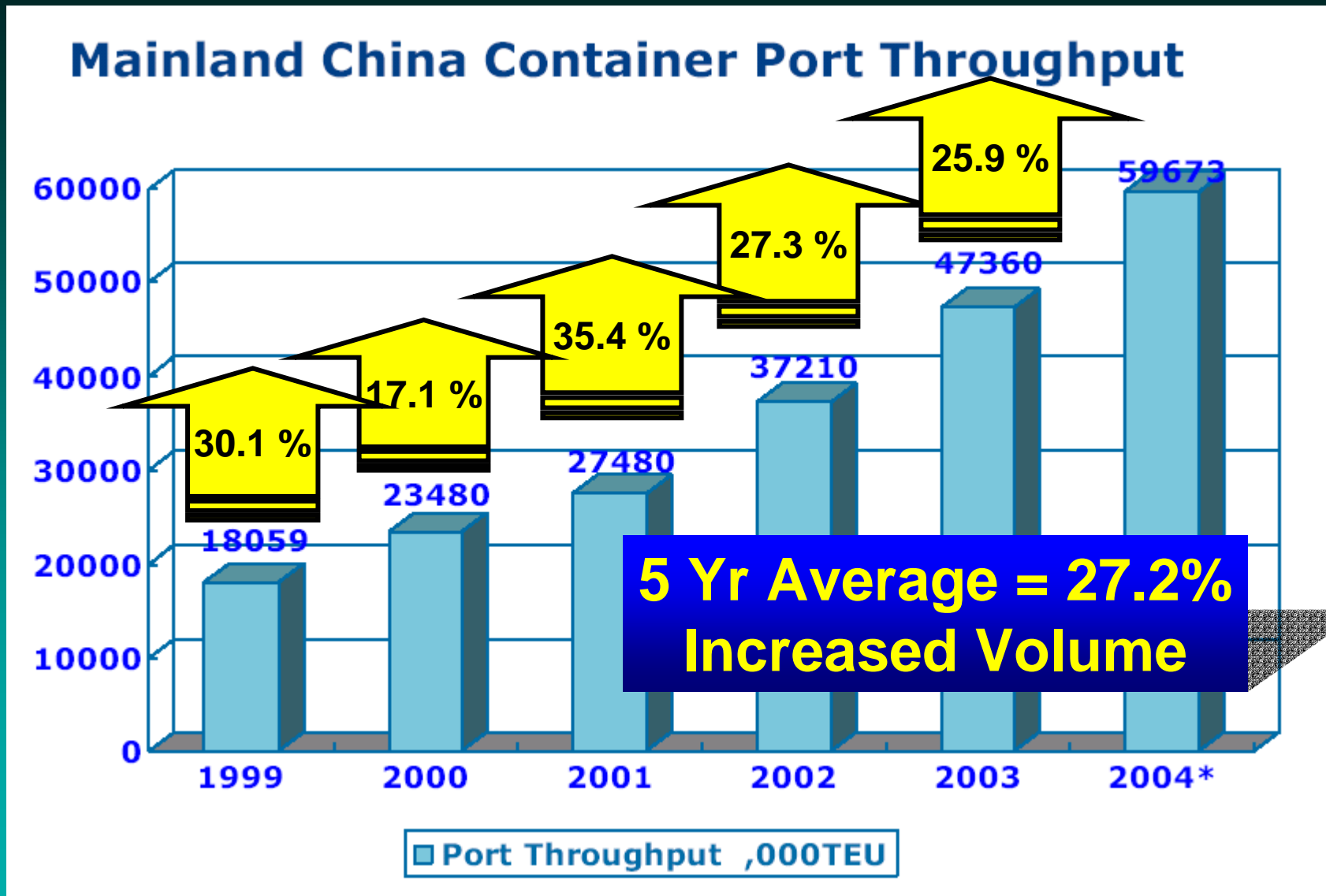
Source: AAPA, Containerisation International Yearbook

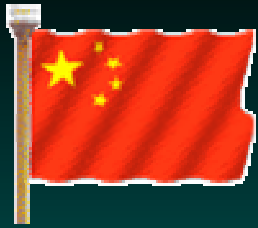


**China**

**North American Maritime Trade:  
*Constant Bearing-Decreasing Range*  
*“The Perfect Storm”*: Asian/China Imports**

# Mainland China Container Growth (CAGR)





## China is Leading a Global Economic Rebound becoming the World's Manufacturing Powerhouse

- Global manufacturing is now centered in China.
- China will double its **GDP** by 2010 and **quadruple** it **by 2020**.
- By 2008 China will be the second largest global trading country.
- China's cargo, including Hong Kong loadings accounts for **70% of the total Pacific cargo flows**.
- China's container volumes will increase from 60 million TEUs to over **100 million TEUs by 2010**.

# China's Ministry of Railways Signed a 5 year Cooperation Agreement with the US BNSF Railroad for Intermodal Rail Development

- Develop China's high volume efficient intermodal network
- **\$242 billion program to 2020**
- High volume intermodal freight corridors to major ports
- On-dock & near-dock intermodal transfer yards at ports
- Ministry to build 18 mega-terminals with 7 at seaports, 40 smaller Intermodal terminals

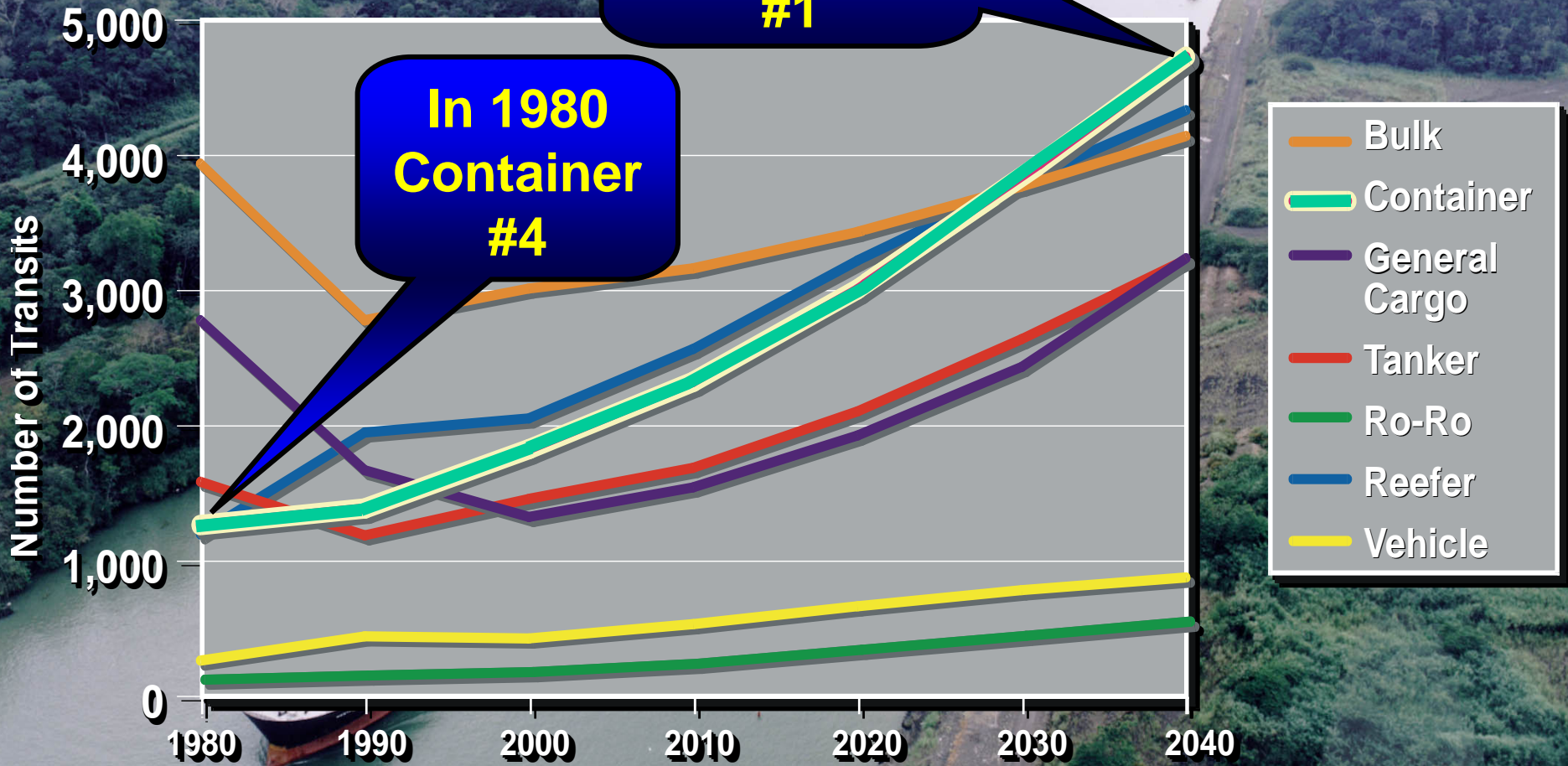
铁路



# Panama Canal Vessel

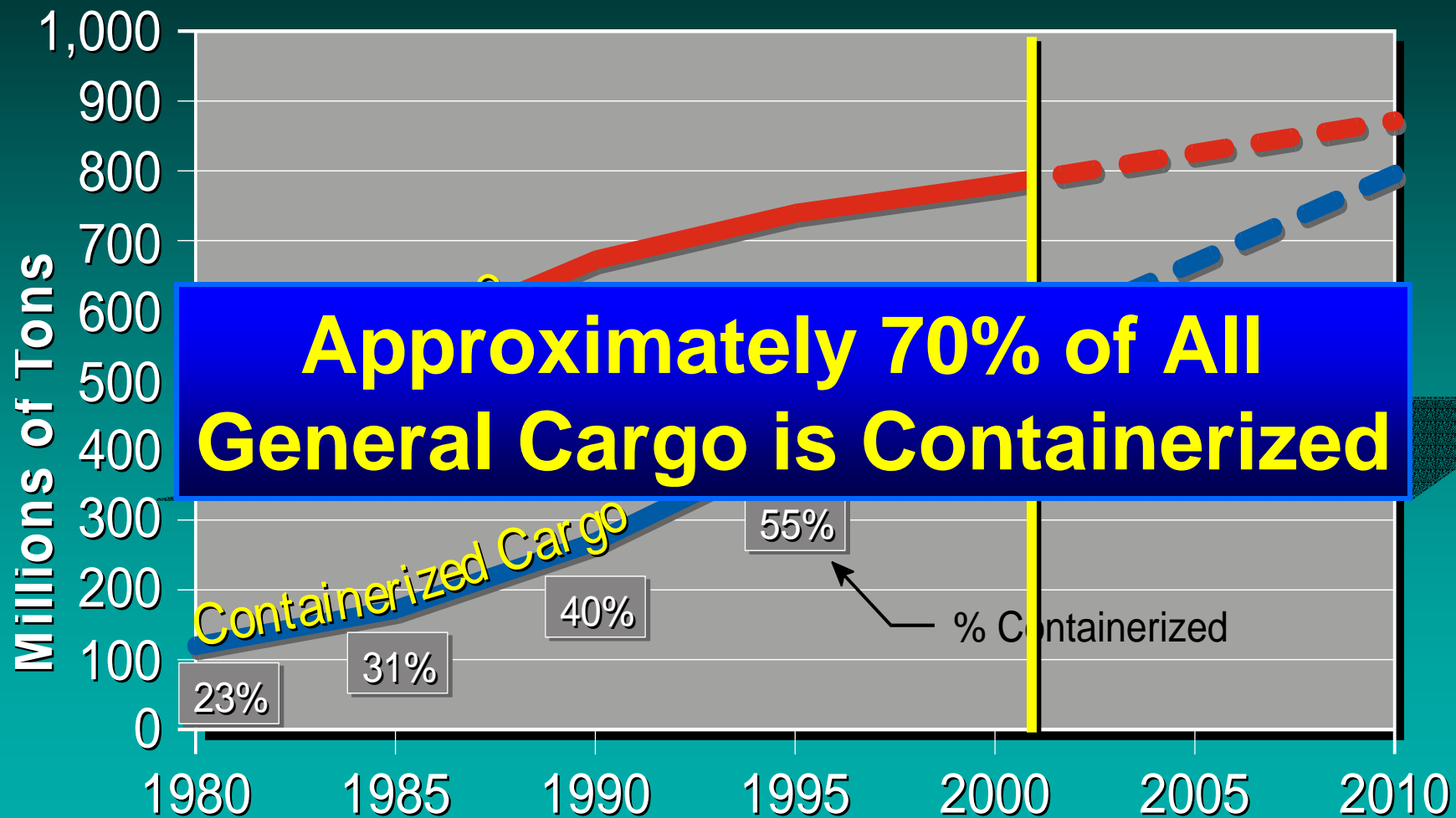
## Forecast Transits


Container Ships **In 2040 Container #1** **In 1980 Container #4** **the Canal Transits**



Source: Panama Canal Commission/ICF Kaiser, June 1997

# World Containerization of the General Cargo Trades



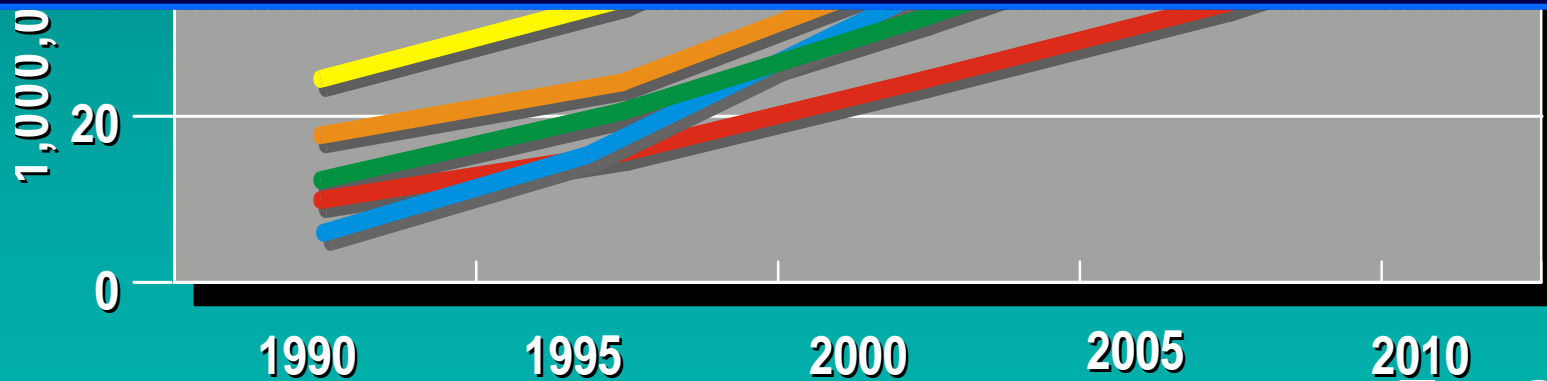


***Can US Marine  
Terminals Handle  
the Forecasted  
Freight Volumes ?....***

# U.S. Containerized Tonnage Forecast

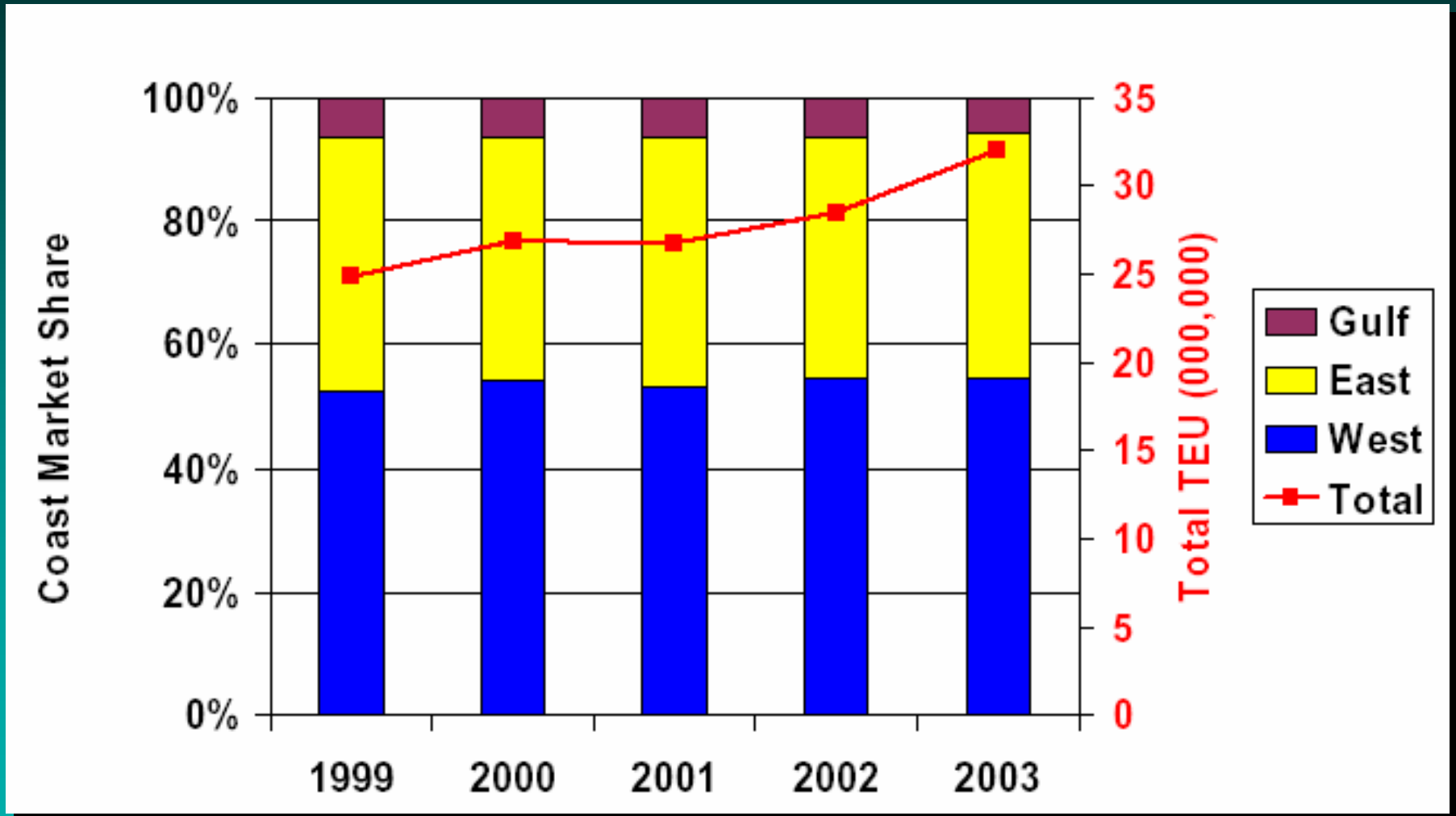


**By 2020 Most US Container Port Gateways Will Double or Triple in Volume**



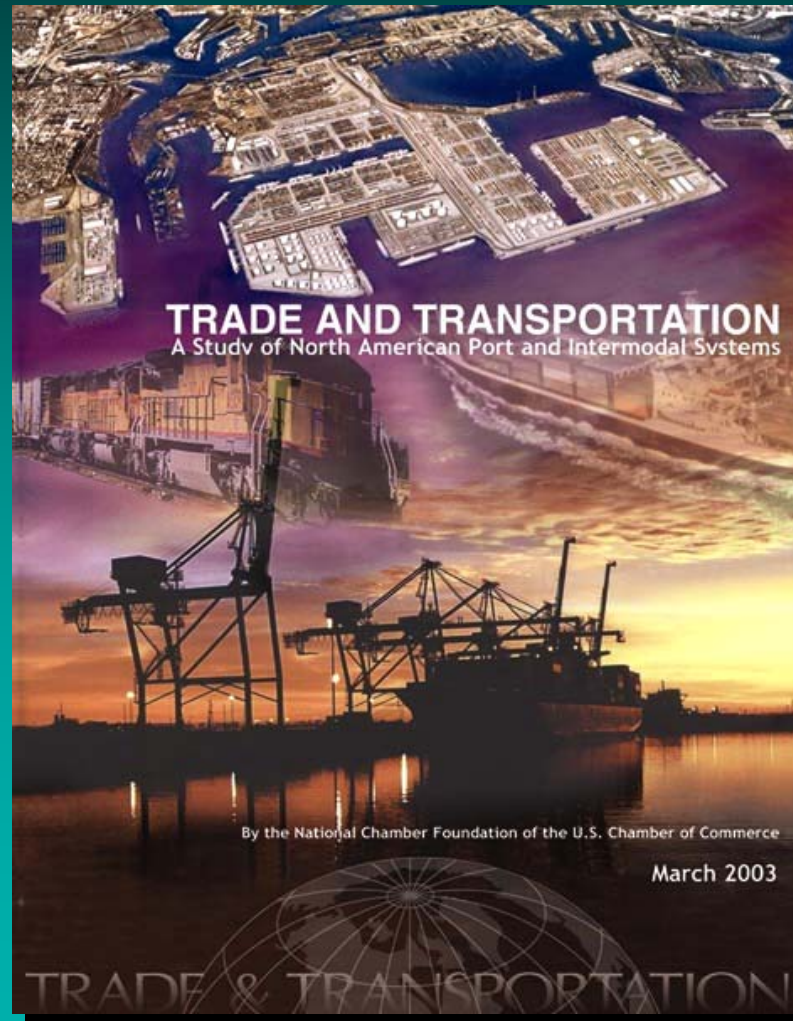
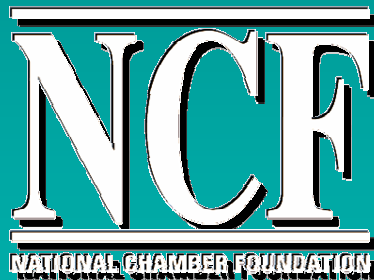
Source: DRI/McGraw Hill

# 2003 US Port Container Throughput by Coast



Source: Computed from Seaports of the Americas – 2003, Containerization International Yearbook - 2003 and port-provided data bases/interviews

# US Chamber of Commerce: Trade & Transportation Study of North American Port & Intermodal System





# North American Port and Intermodal Systems

## USCOC Target Ports

### Canadian Ports

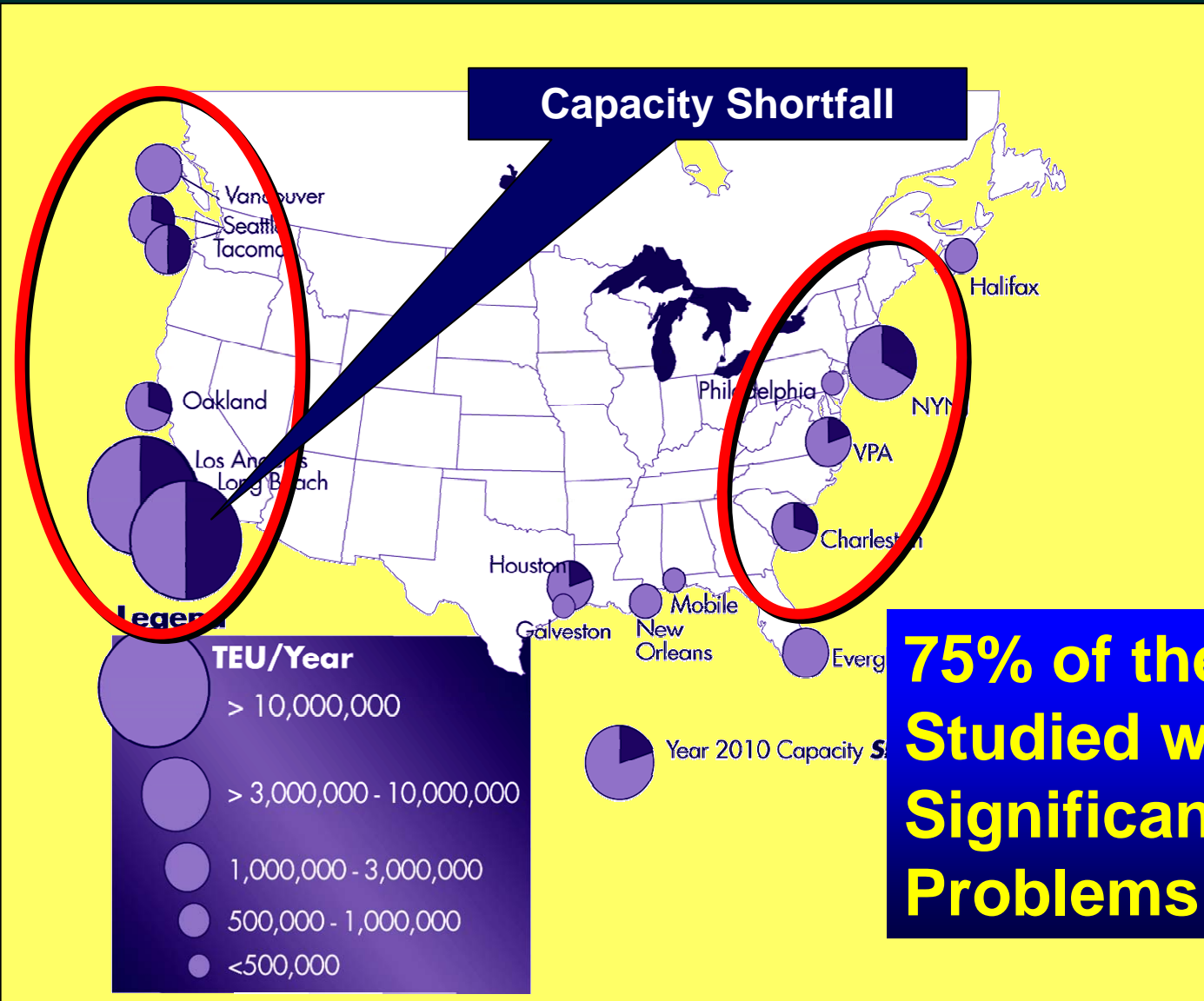
### West Coast Ports

### Gulf Coast Ports

### East Coast Ports

1.	Vancouver, Canada	●			
2.	Tacoma, Washington		●		
3.	Seattle, Washington		●		
4.	Oakland, California		●		
5.	Los Angeles, California		●		
6.	Long Beach, California		●		
7.	Houston, Texas			●	
8.	Mobile, Alabama			●	
9.	Galveston, Texas			●	
10.	New Orleans, Louisiana			●	
11.	Halifax, Canada	●			
12.	New York/New Jersey				●
13.	Norfolk, Virginia				●
14.	Philadelphia, Pennsylvania				●
15.	Port Everglades, Florida				●
16.	Charleston, South Carolina				●

# 2010 Projected Public Port Capacity Shortfall



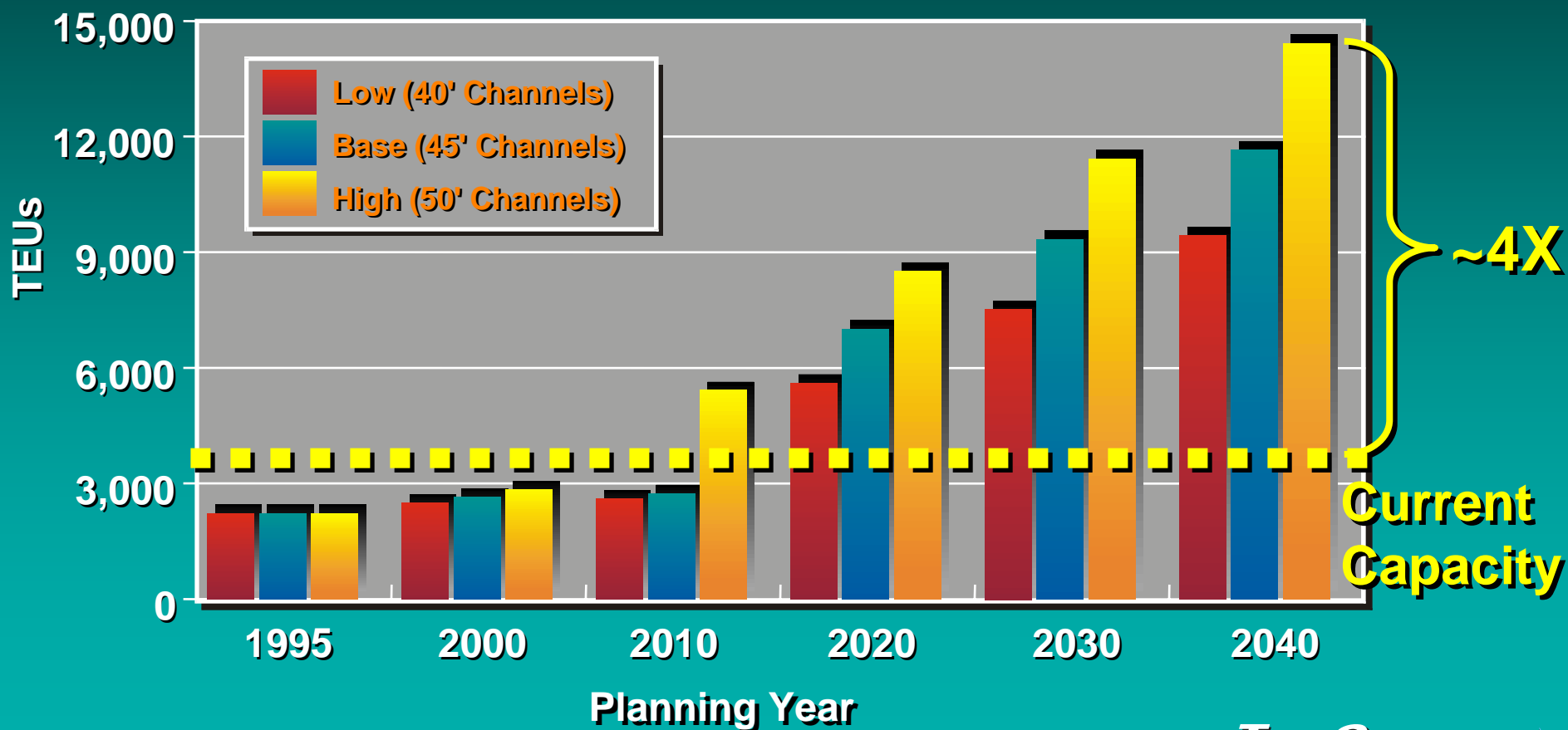
**75% of the 16 Ports Studied will have Significant Capacity Problems by 2010**





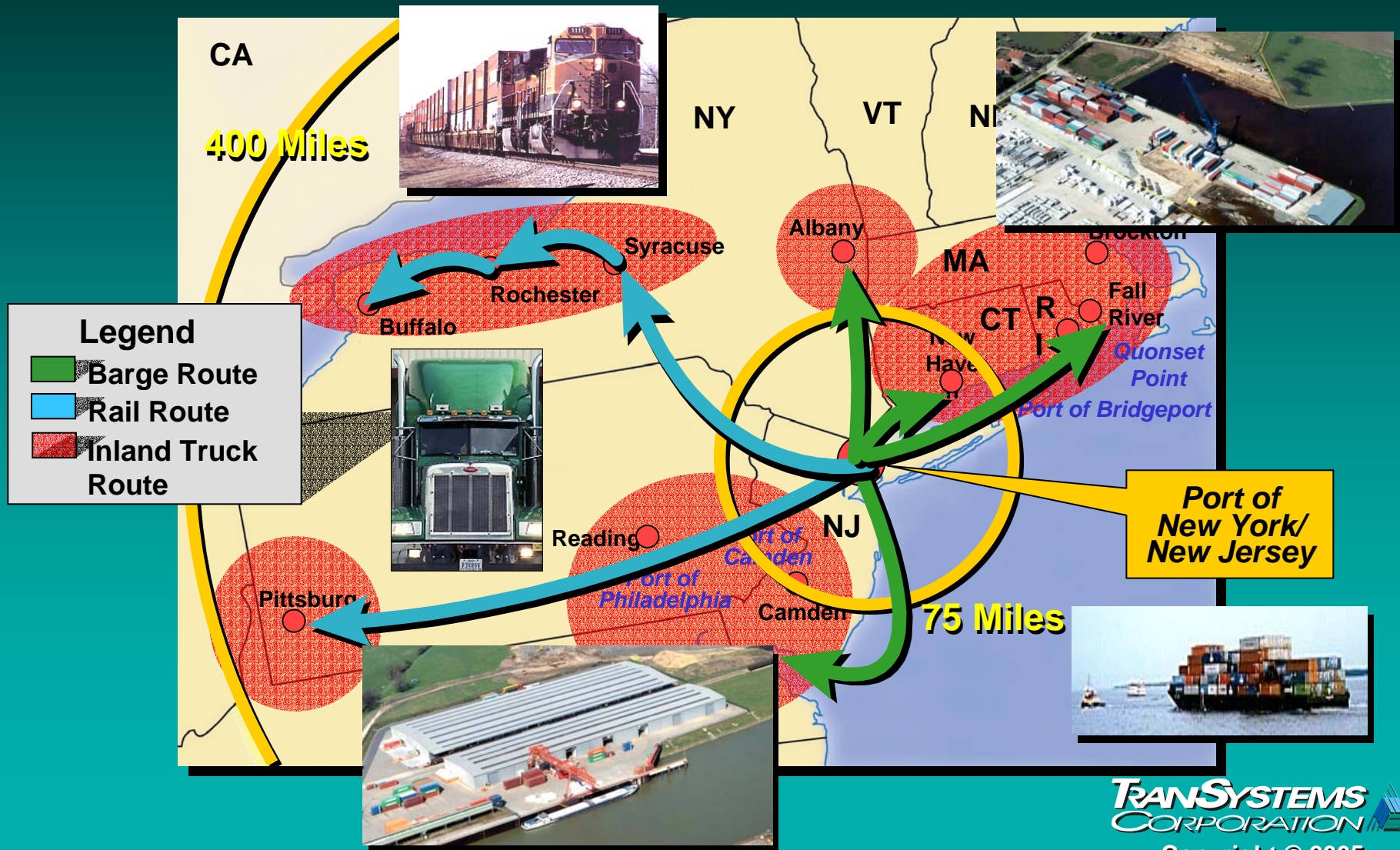
THE PORT AUTHORITY OF NY & NJ

# Port Authority NY/NJ Long Range Regional Container Forecast (TEUs)



Source: PANY/NJ

# Port Authority of New York/New Jersey Port Inland Distribution Network (PIDN)



# Central Logistics Park, Chicago (Joliet Arsenal BNSF) “The Ultimate Inland Port”



**Largest Intermodal Rail Container Terminal in the US**



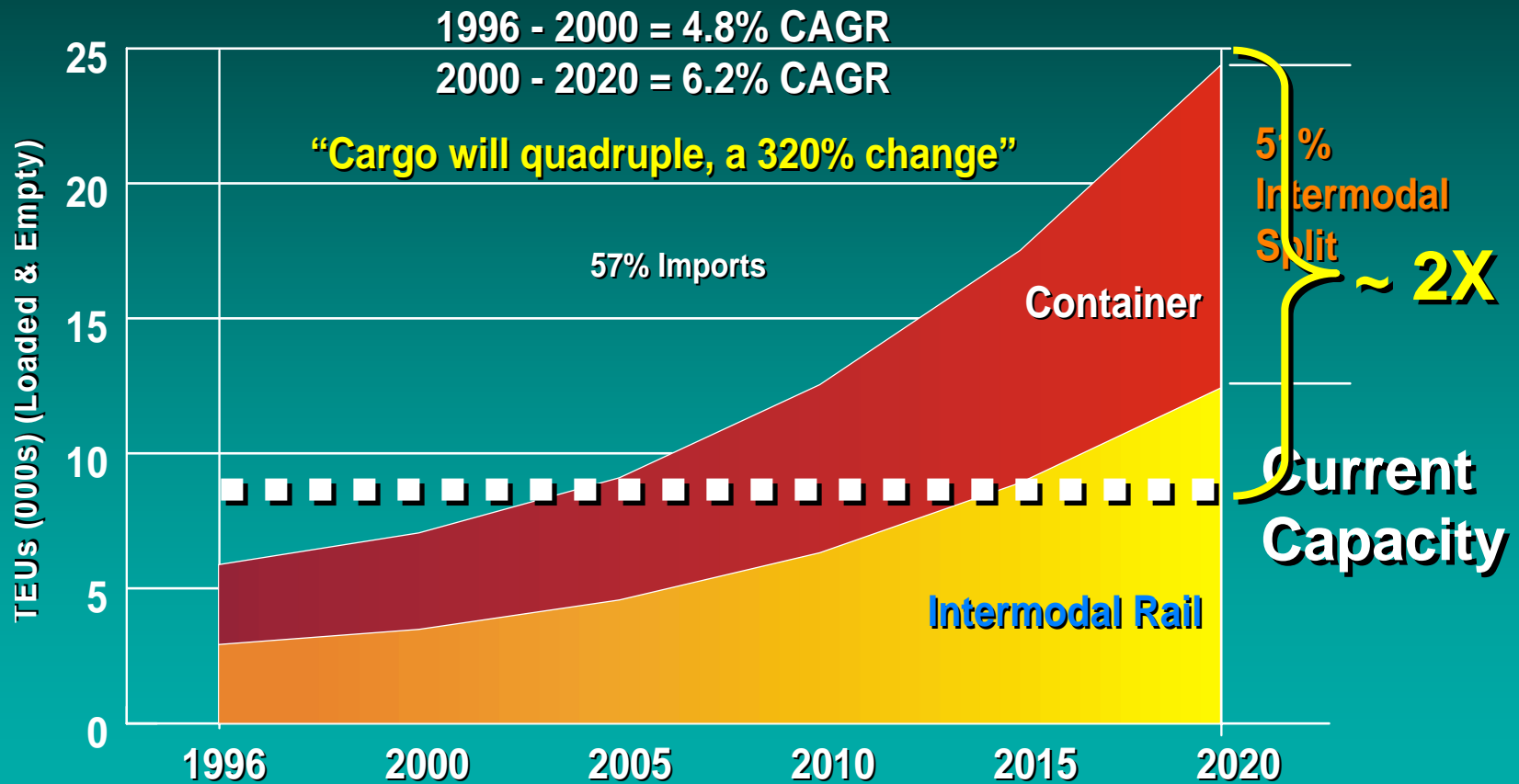


+



THE PORT OF LOS ANGELES

# Ports of Los Angeles and Long Beach Container and Intermodal 2020 Forecast



(Worse Case: Asian Crisis Steady-State)



+



# San Pedro Bay Ports of Ports of Los Angeles and Long Beach Container Growth Implications:

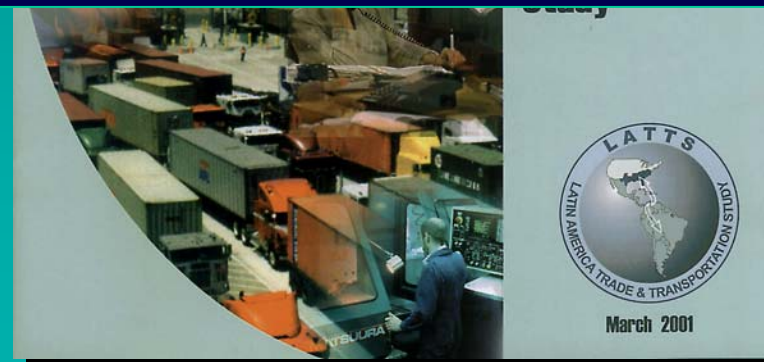
*“At current growth and per acre productivity, in 18 years the two Ports will require **3,624 new acres of container terminal**”\**

\* Source: Port of Long Beach

# Latin America Trade & Transportation Study (LATTTS)



**Predicts that Port and Intermodal Systems for the 13 Southern US States Will Reach Capacity in 2008 - 2012**



A large, powerful blue wave crashing over a rocky shore. The water is a deep blue, and the wave is curling over, creating a white foam. The background shows a rocky coastline under a bright sky.

# **International Port Productivity Comparisons**



# Global Port Terminal Productivity

North American Ports Are Not As Productive  
As The Most Productive International Ports  
By a Factor Of More Than 4 To 1

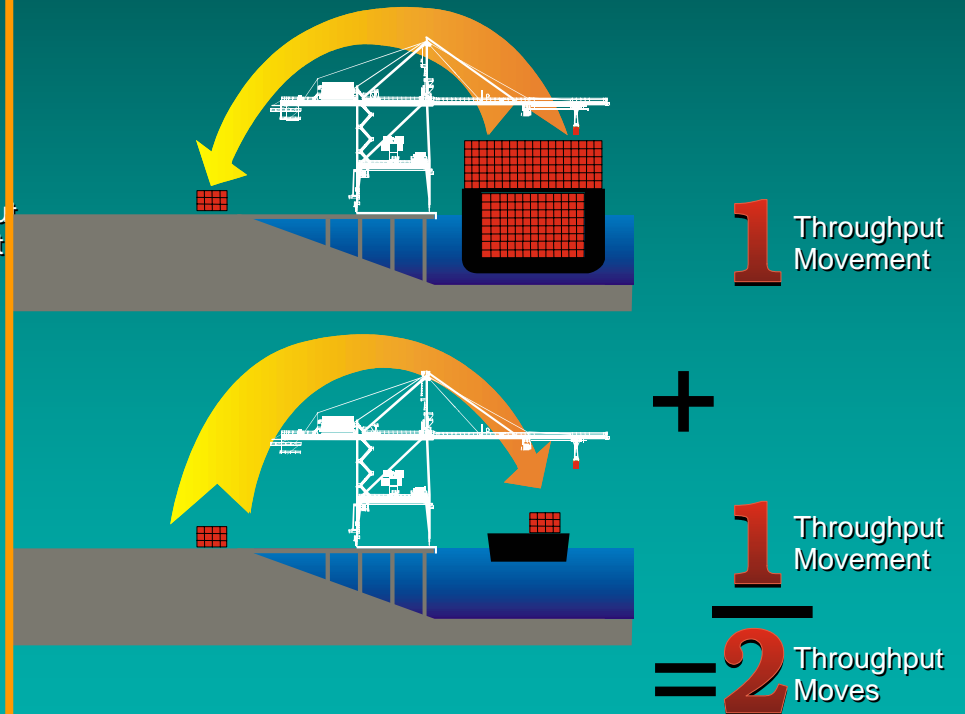
Discounting Asian “Transshipment Ports”  
The Factor is Almost 2 To 1

# Defining Container Transshipment

## Conventional Container Movement



## Transshipment Container Movement



# Global Marine Terminal Productivity Growth

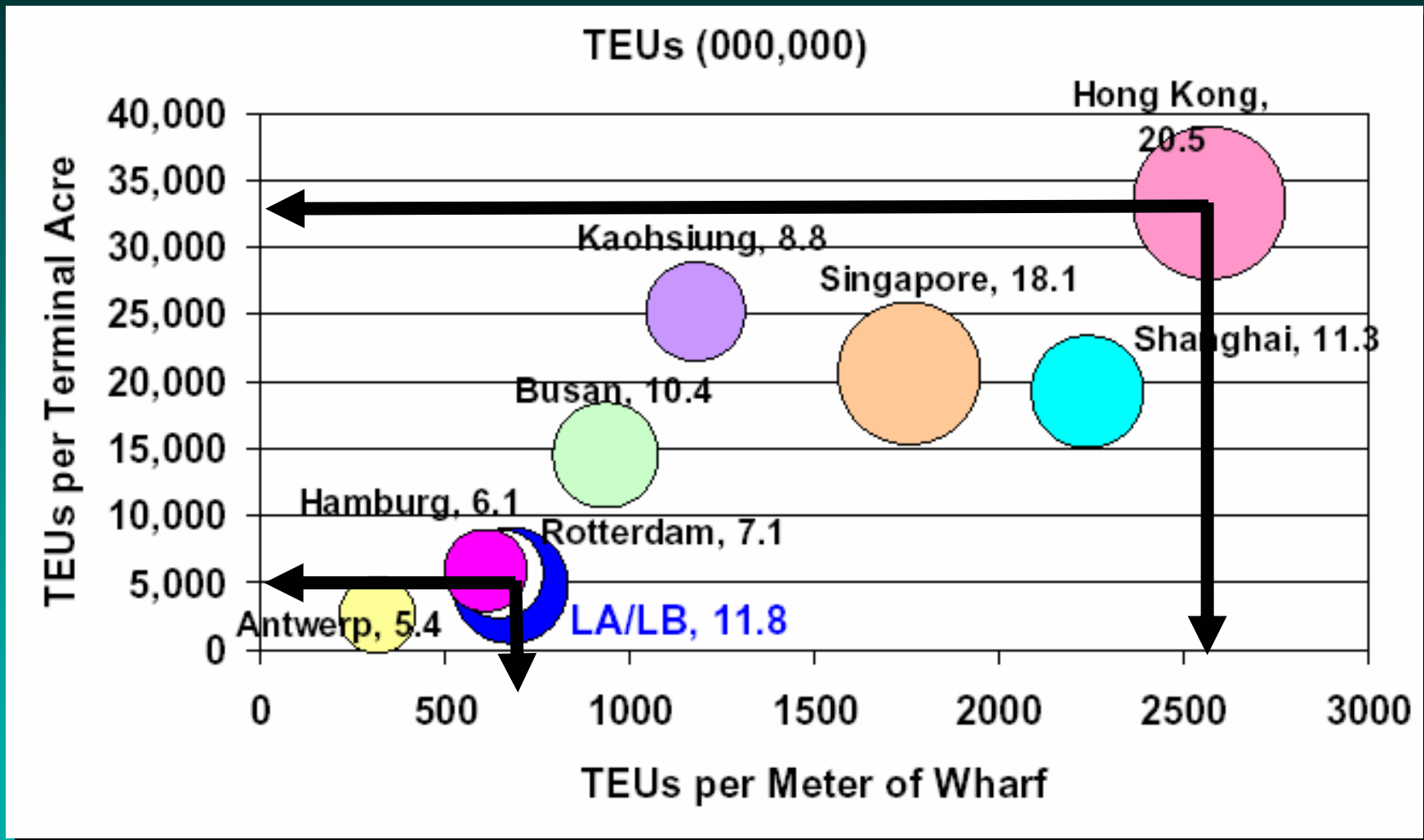
(Circa 1995 to 2003)

(Throughput measured in TEUs/Acre/Year)

	1995	2003	5YR CAGR
<b>Asian Ports</b>	<b>8,834</b>	<b>18,500</b>	<b>19.9%</b>
<b>European Ports</b>	<b>2,974</b>	<b>6,800</b>	<b>9.2%</b>
<b>United States Ports</b>	<b>2,144</b>	<b>3,900</b>	<b>9.0%</b>
<b>US West Coast Ports</b>	<b>3,567</b>	<b>4,300</b>	<b>10.9%</b>
<b>US Gulf Coast Ports</b>	<b>2,816</b>	<b>4,000</b>	<b>3.7%</b>
<b>US East Coast Ports</b>	<b>1,281</b>	<b>3,300</b>	<b>10.3%</b>

Source: 1995 & 2003 CI Yearbooks, Seaports of the Americas, Port Data

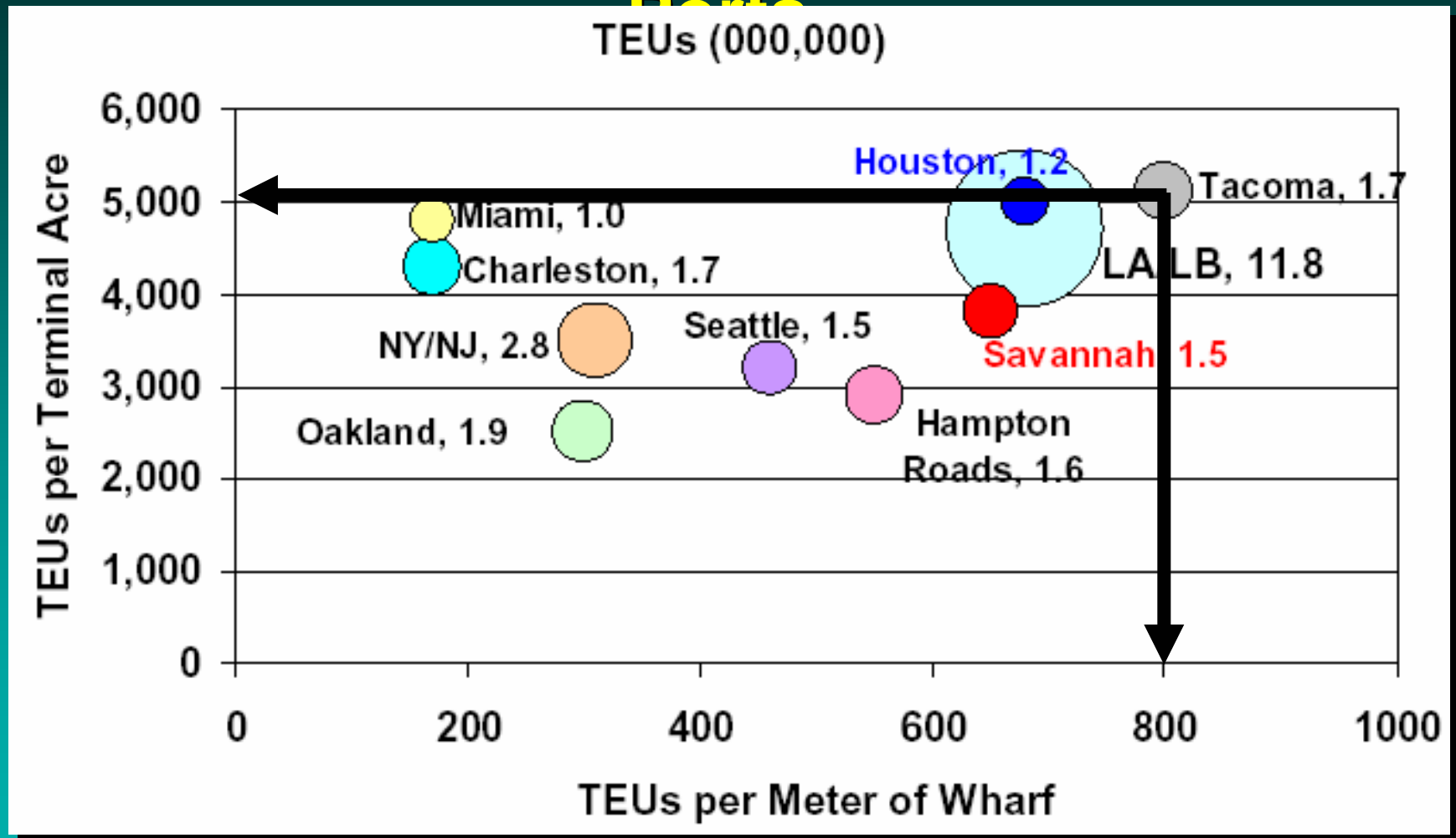
# 2003 International Port Productivity Top 10 Ports in Millions of TEU Throughput



Source: Computed from Seaports of the Americas – 2003,  
Containerization International Yearbook - 2003 and port-provided data bases/interviews

# 2003 US Port Productivity Top 10

Ports

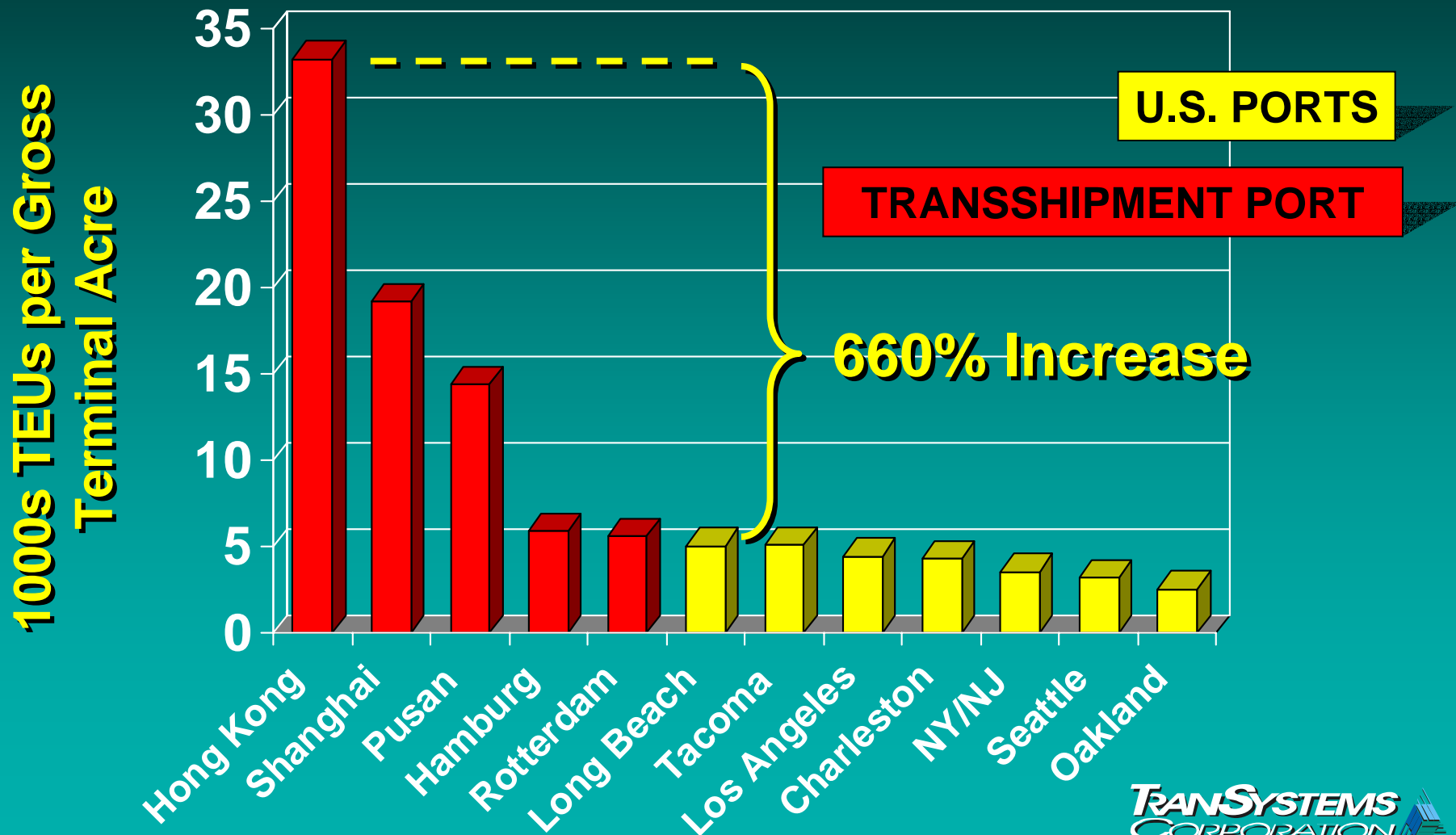


Source: Computed from Seaports of the Americas – 2003, Containerization International Yearbook - 2003 and port-provided data bases/interviews

# 2003 World Container Terminal Productivity

## “Significant Transshipment”

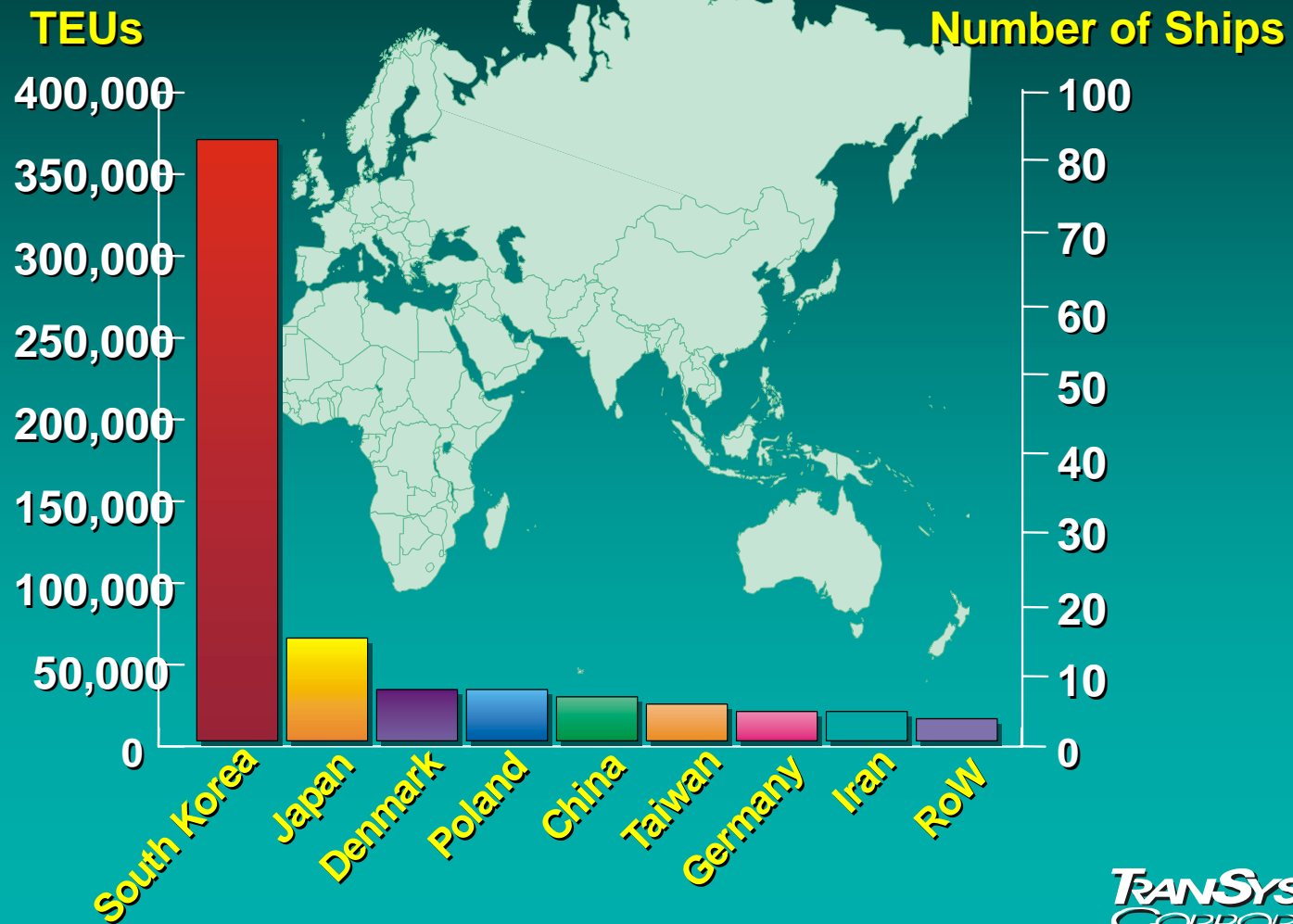
Throughput per Gross Acre per Year





# **Maritime Vessel Technology Trends**

# Nationality of 2001 New Builds in World Container Fleet



# Global New Build Orders Increased 40% to 40 Million Gross Tons

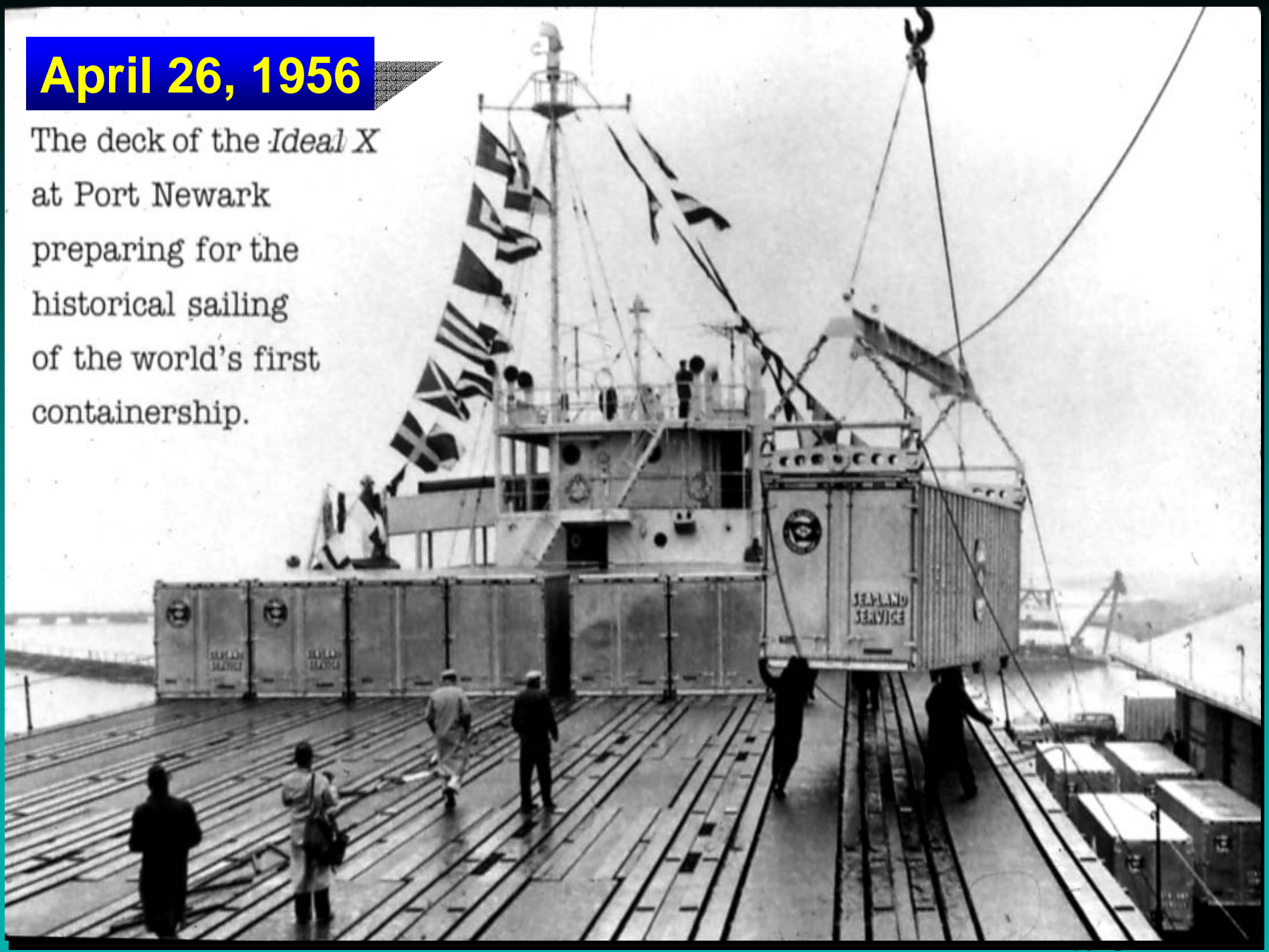


<b>South Korean Shipyards:</b>	<b>UP 76%</b>
<b>Japanese Shipyards:</b>	<b>UP 55%</b>

**Together South Korea & Japan Shipyards  
have 76% of the Worldwide Vessel  
Construction**

**April 26, 1956**

The deck of the *Ideal X*  
at Port Newark  
preparing for the  
historical sailing  
of the world's first  
containership.



# World Container Ship Evolution



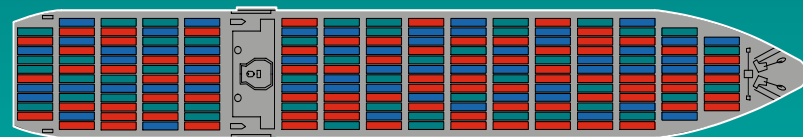
1st Generation (Pre-1960 - 1970)



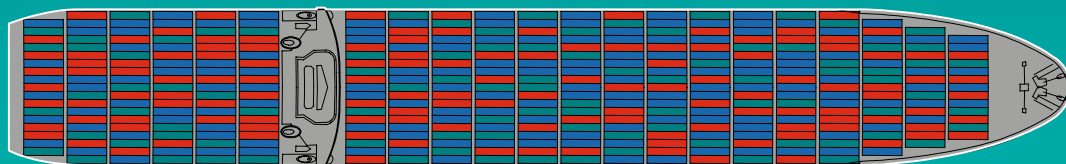
2nd Generation (1970 - 1980)



3rd Generation (1985)

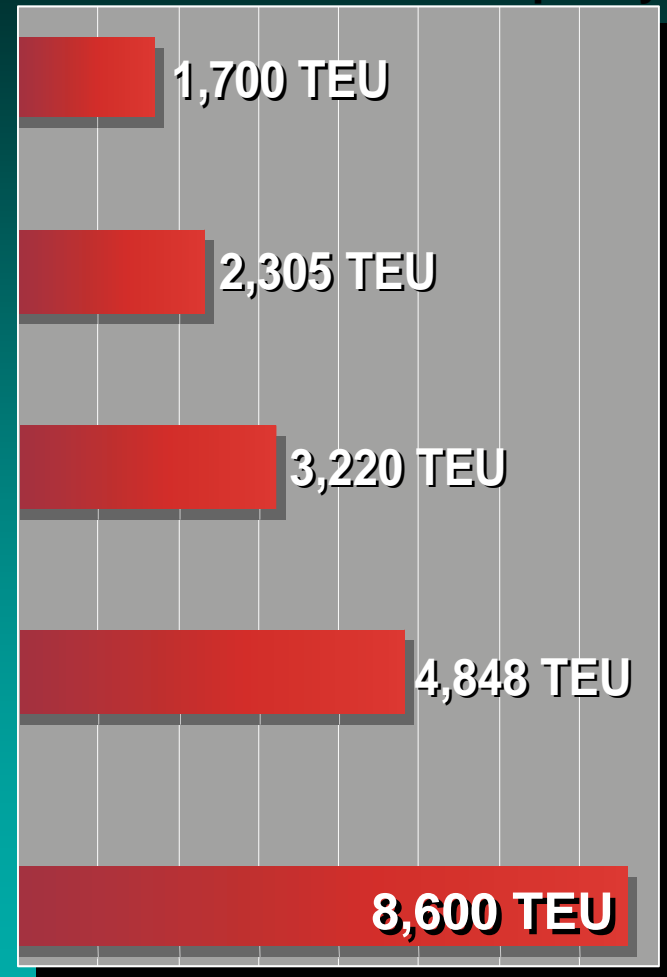


4th Generation (1986 - 2000)



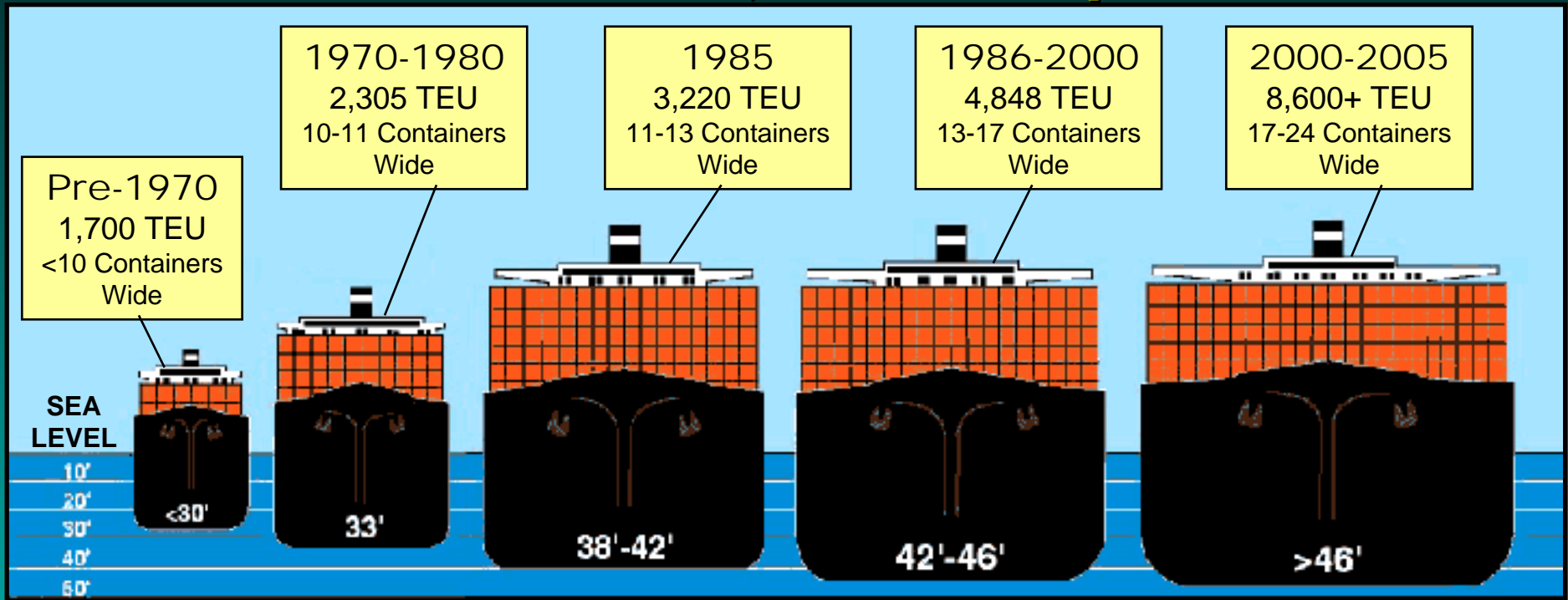
5th Generation (2000 - 2005)

TEU Capacity



# Today's Mega Ships - Measuring Up

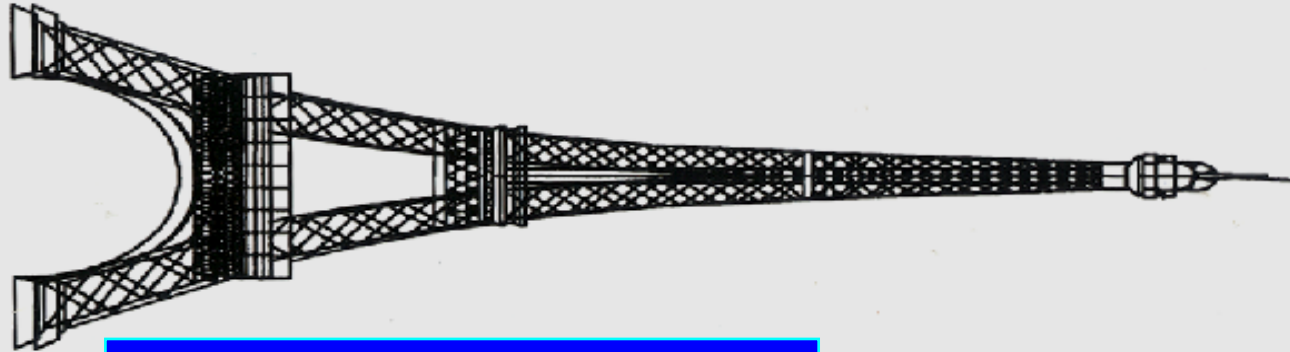
## How Wide, How Deep?



# Madison Maersk (3,928 TEUs) in the Panama Canal



# Today's Mega Ships - Measuring Up



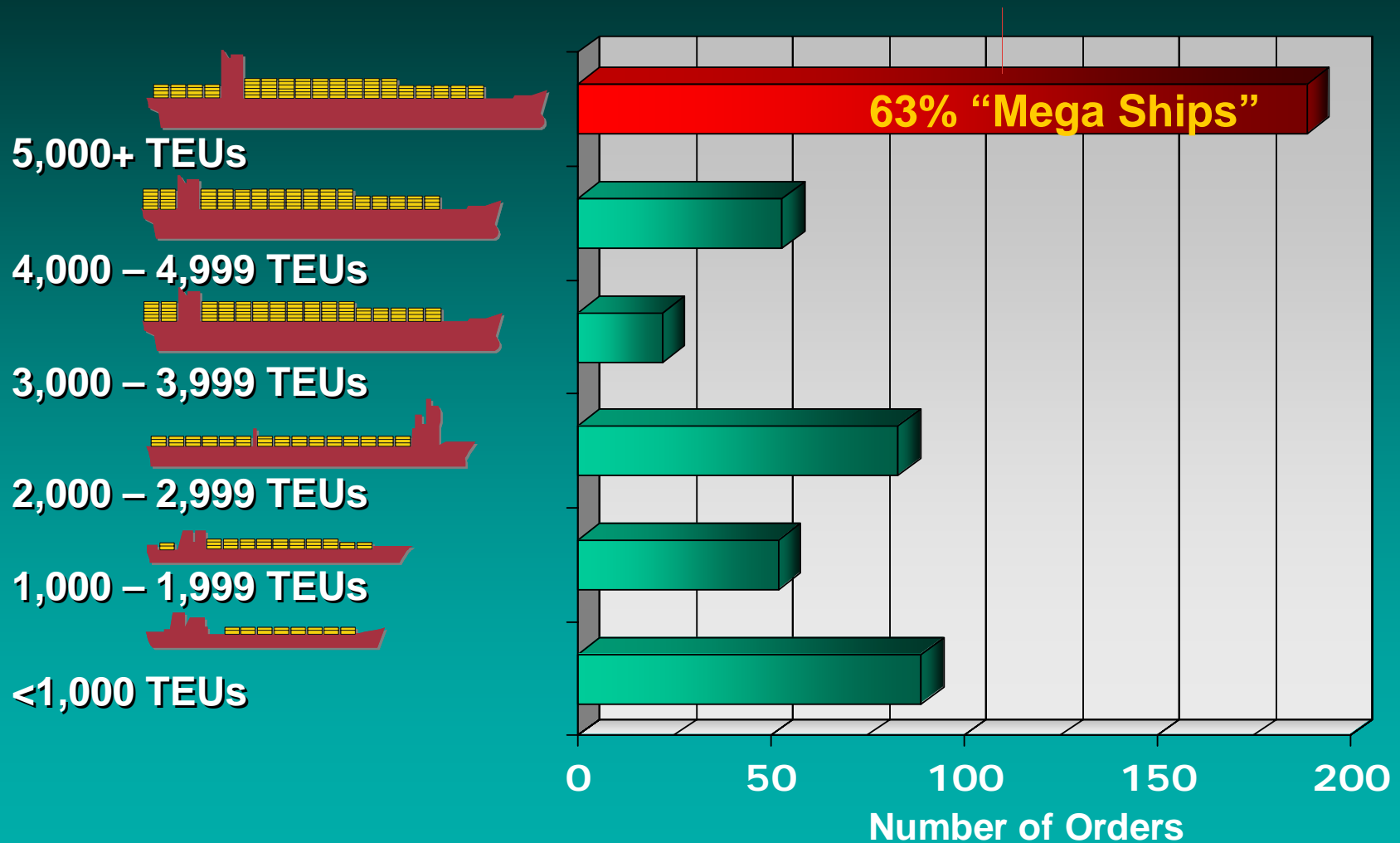
**Eiffel Tower – 990 feet**



**Regina Maersk – 1043 Ft, 140 Ft wide, 6000+ TEUs**

# 2003 New Build Orders

## Expansion of World Post-Panamax Container Fleet



Source: 2004 Containerisation International Yearbook

# The Suez Canal “Back Flow”



# Mega Container Vessel Trends

1970 Industry Prediction: “3,250 TEU”

The Reality:

Regina Maersk 6,000 TEU

Sovereign Maersk 6,600 TEU

20-Wide Planned 8,000 TEU

**Near Term Possible: 10,000 – 15,000 TEU  
(Suez-Class)**



**January 7, 2004...**

**Hapag-Lloyd's new class of 8,600-TEU containerships by Hyundai Heavy Industries. Three 8,600-TEU "mega container ships," with the first to be delivered in 2007 and the remaining two in 2008. The 100,000 dwt ships will be 335 meters (1,099 feet) long, 43 meters (141 feet) wide, and a maximum speed of 25.2 knots**

# The Hatch-Less Container Vessel

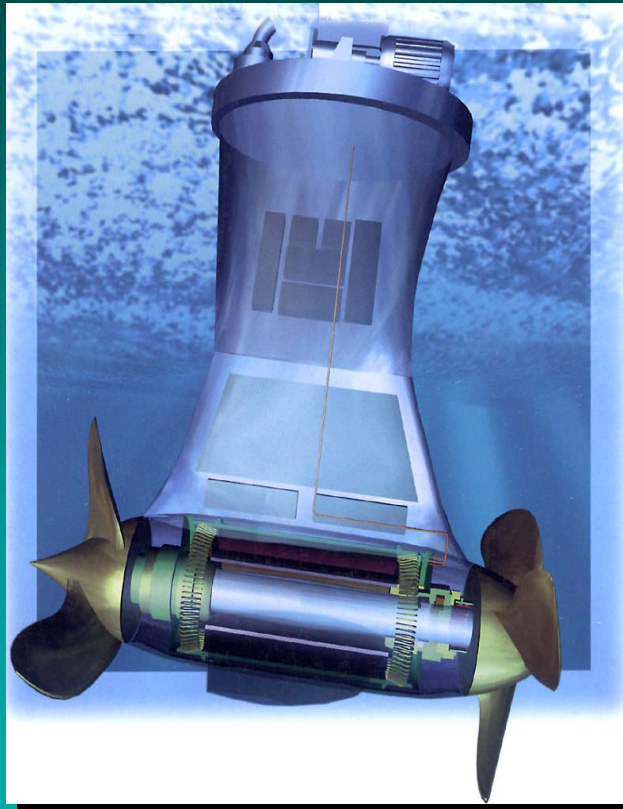


## Per P&O Nedlloyd:

- 15% Faster Port Productivity
- 84% Less Re-Stows
- Less Damaged Boxes



# Containerships & Recent Cruise Vessel Technological Advances...What's Next?



**SSP Propulsor**  
**Schottel / Siemens**



**Azipod**  
**Eagle Class Cruise**  
**Vessel**

# The 15,000 TEU Containership

**“...the ship is a flight of fancy... but such a ship is within the current state of the shipbuilder’s art...”**

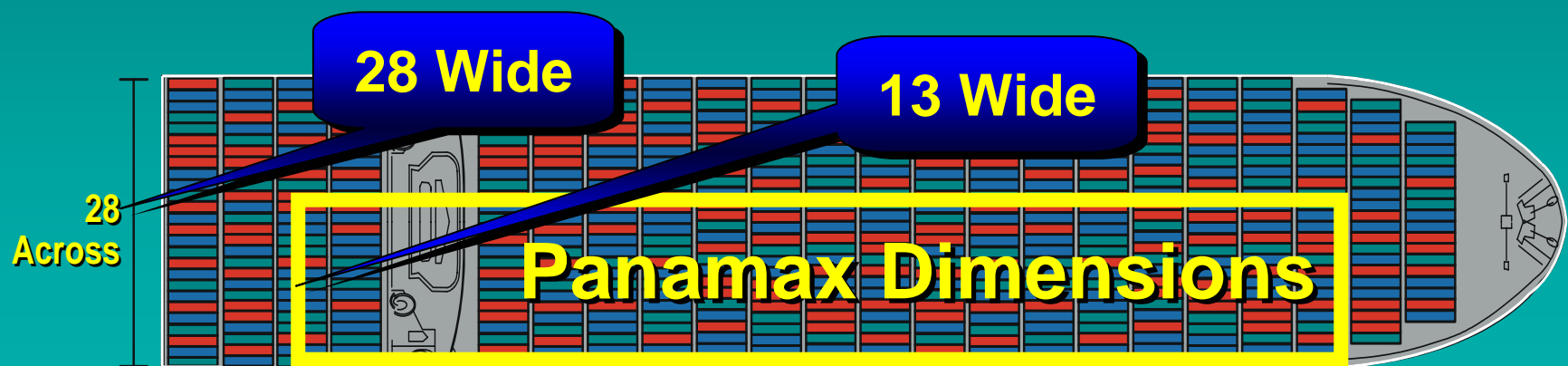
**R. G. McLellan, P&O Containers**

# The 15,000 TEU Containership

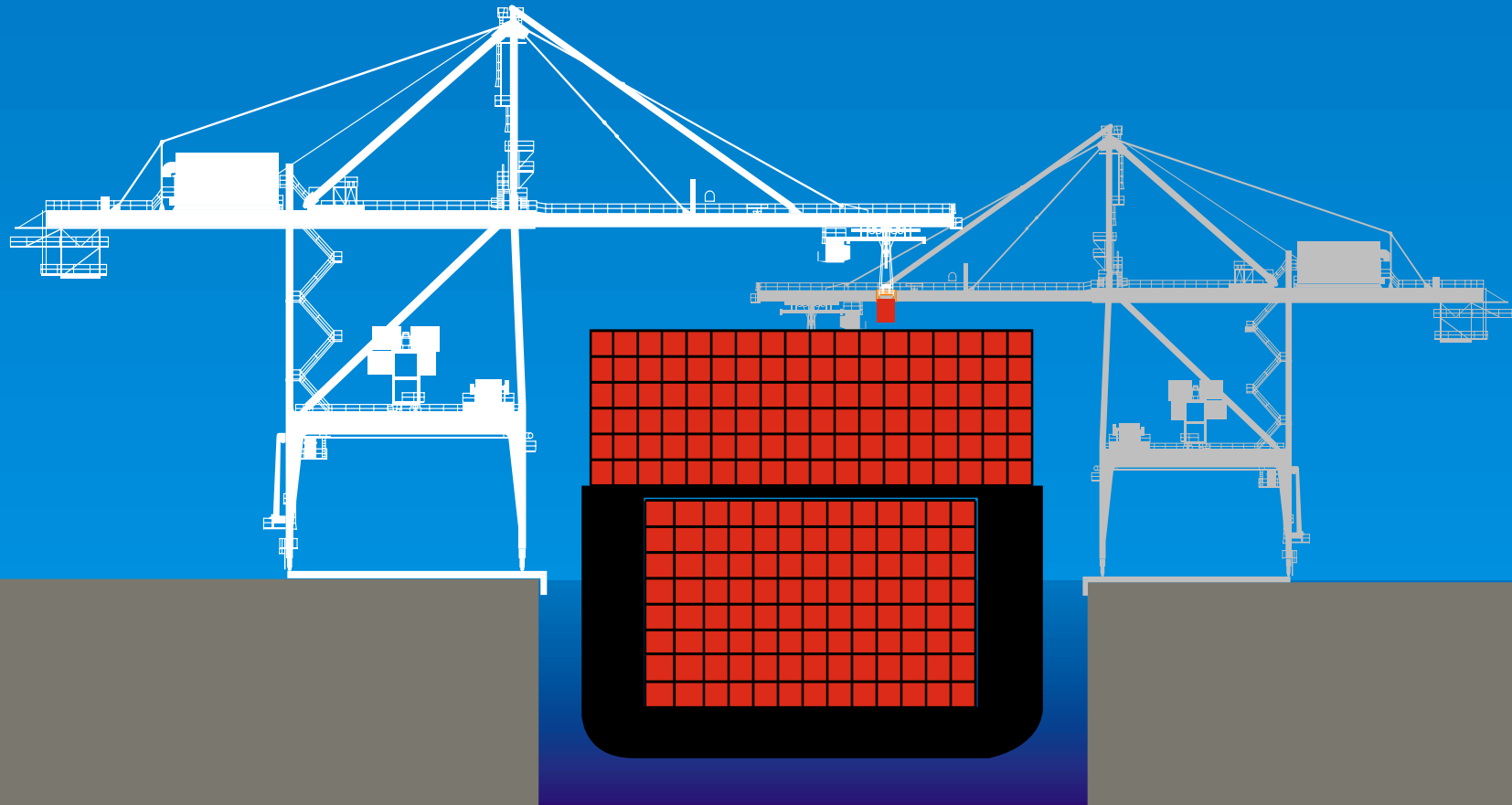
LOA. = 400 m (1,312 ft.)

Draft = 14 m (46 ft.)

BEAM = 69 m (226 ft.)



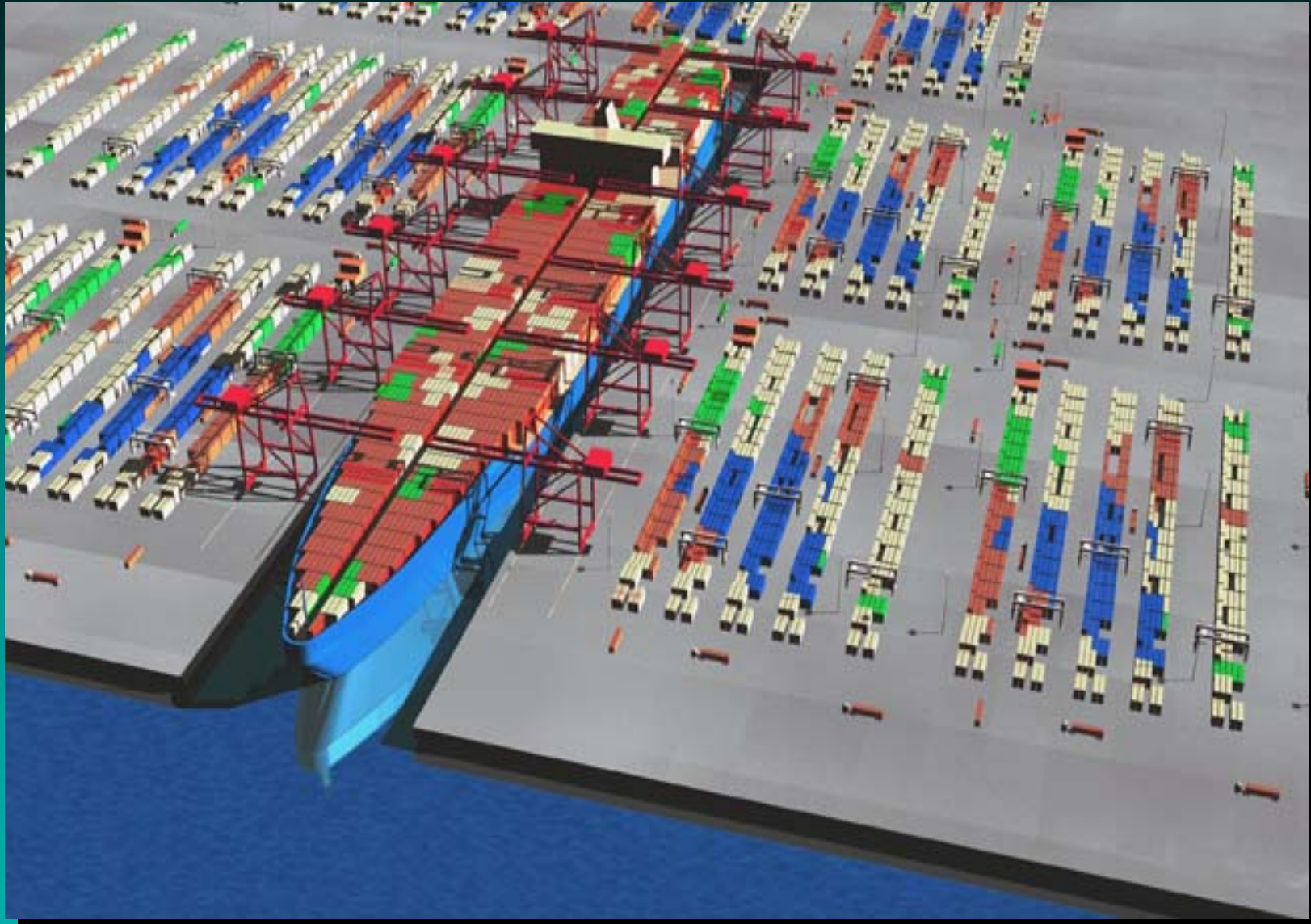
# Potential Loading Strategy for a 15,000 TEU Containership



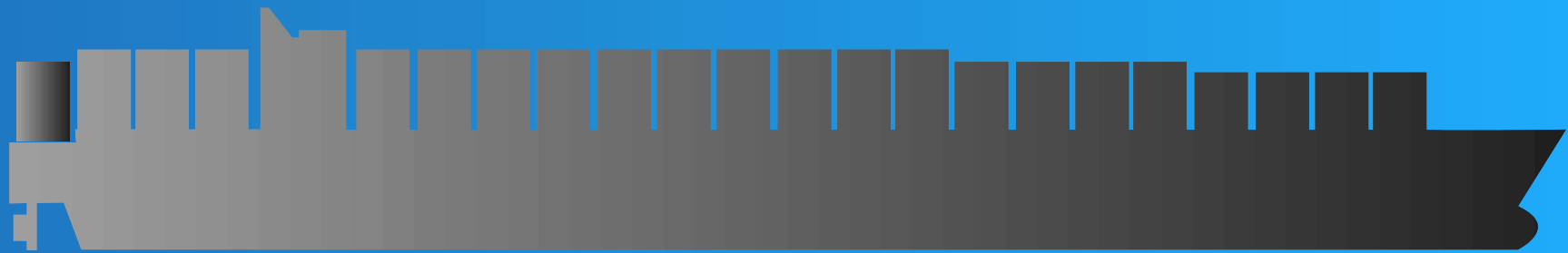
28-Wide Vessel

Source: Morris Cranes and P&O Containers

# Container Ship-in-a-Slip Concept



# The 18,000 TEU Malaccamax Reported Predictions/Benefits



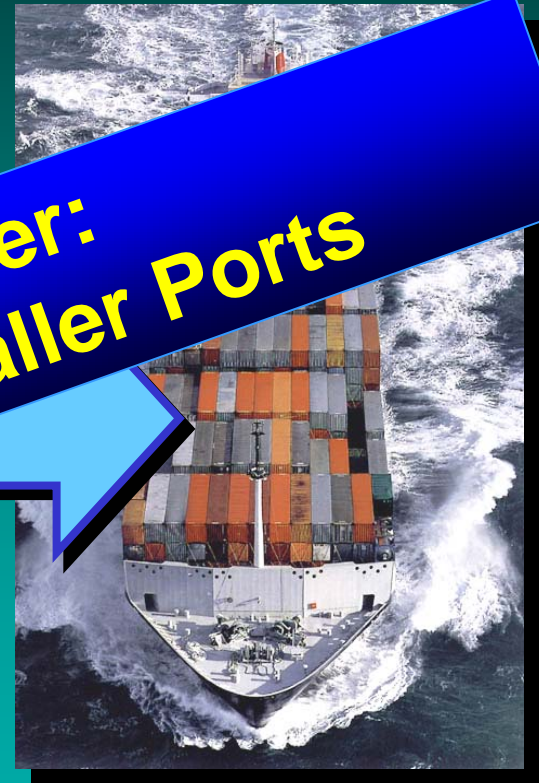
- By 2010 on Asia-Europe Trade Route
- **30% Cheaper** than 4800 TEU Panamax Vessel, primarily due to “Economies of Scale”
- **US\$40/TEU Savings**

Source: Dynamar Consultancy, Rotterdam

# Emergence of North American Fast Feeder Short-Sea Coastal Vessels



**The New Frontier:  
For Second Tier Smaller Ports**



**3,000 TEU Feeder Ship**

**10,000 to 15,000 TEU Mega Ship**

Short Sea Shipping  
COOPERATIVE



# Short Sea Shipping Coastwise Maritime Trade



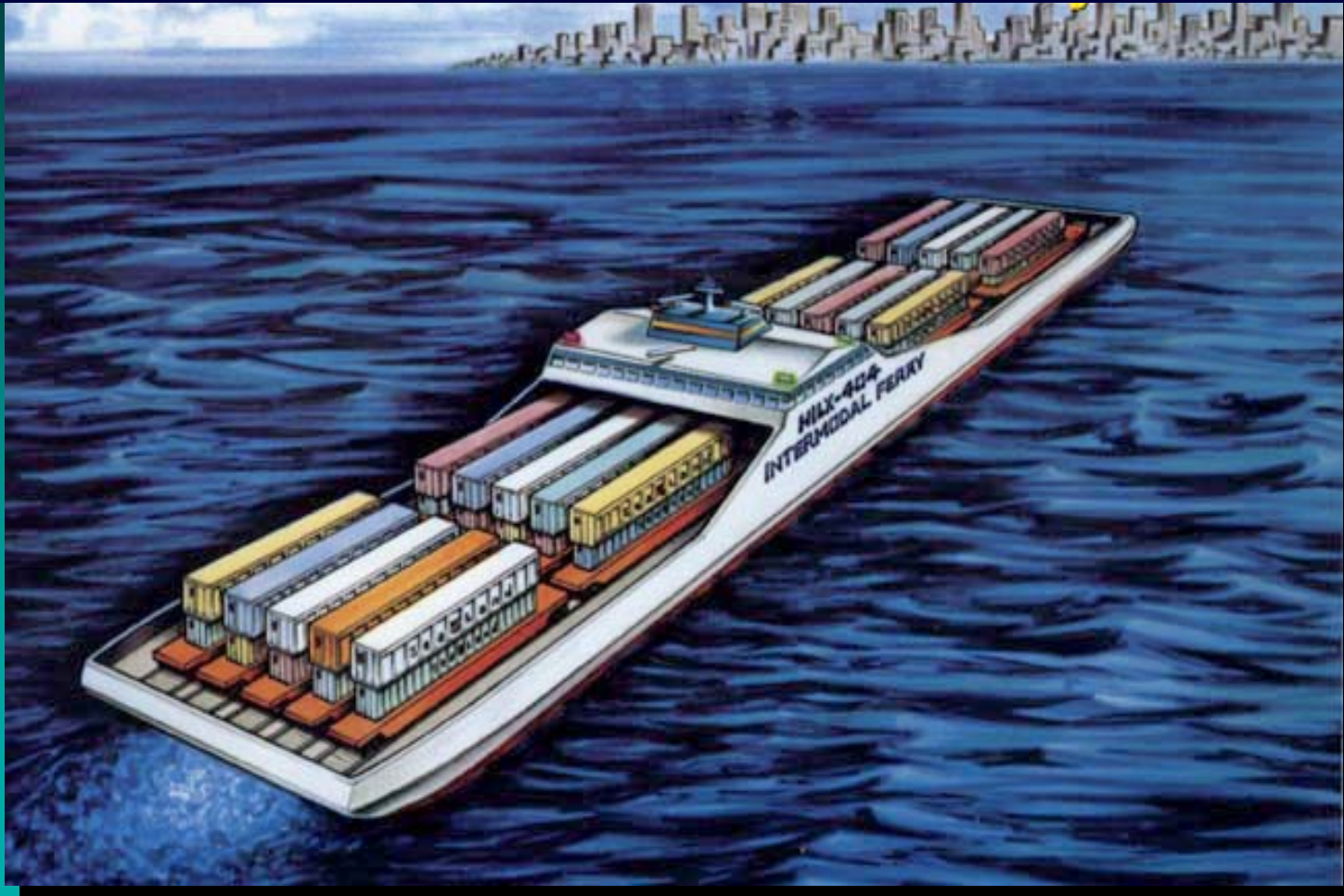
**Taking Freight off of Congested Roads**



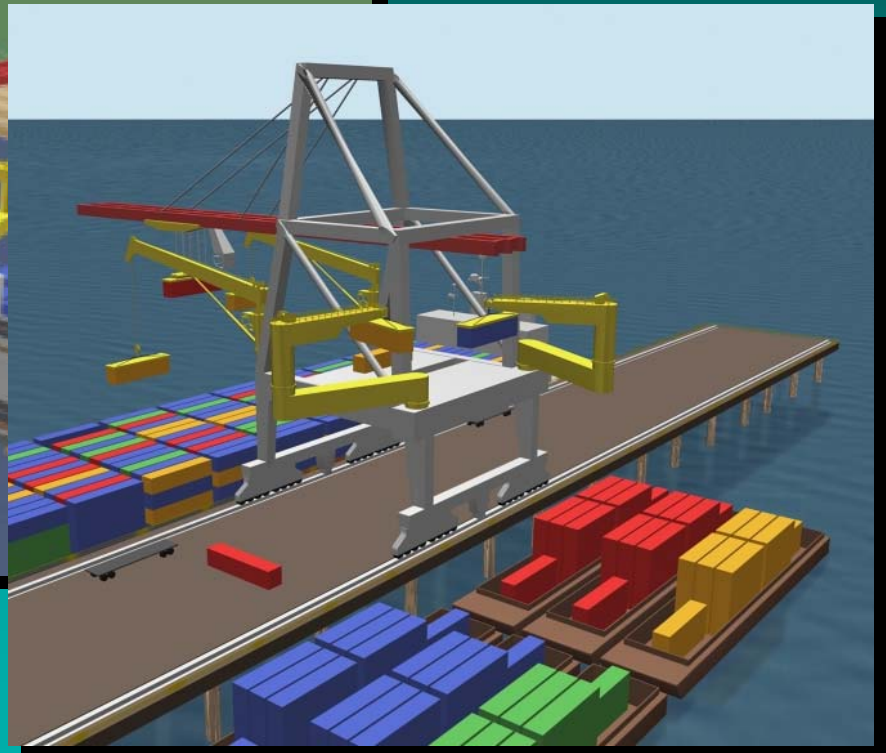
# Emerging Viable Container On Barge Coastal Shipping Concepts & Inland Intermodal Port Potential



# High-Speed, Low Wake, Intermodal Float Technology



# Sea Point LLC, Marine Intermodal Terminal (Millennium Port New Orleans)



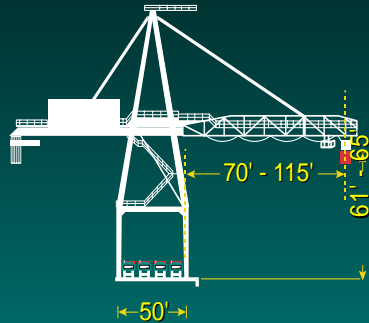
# Container Crane Evolution



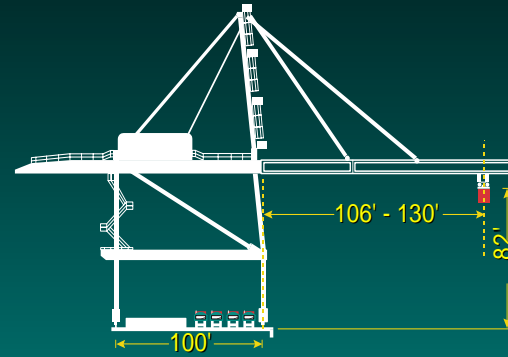
# One of the World's Most Efficient Container Ports - Port of Singapore (PSA)



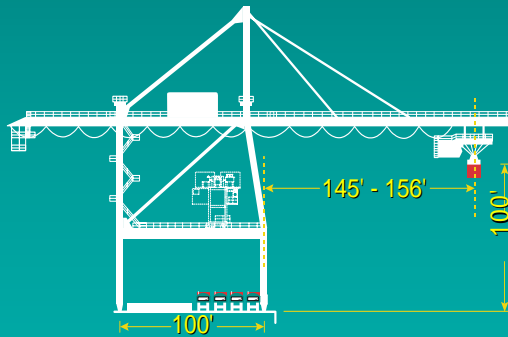
# Container Crane Evolution



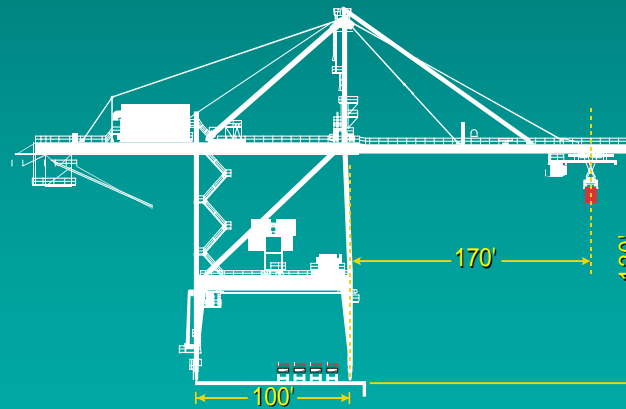
**First Generation (1960s)**  
(Cost \$750,000)



**Second Generation (1970s)**  
(Cost \$2,400,000)

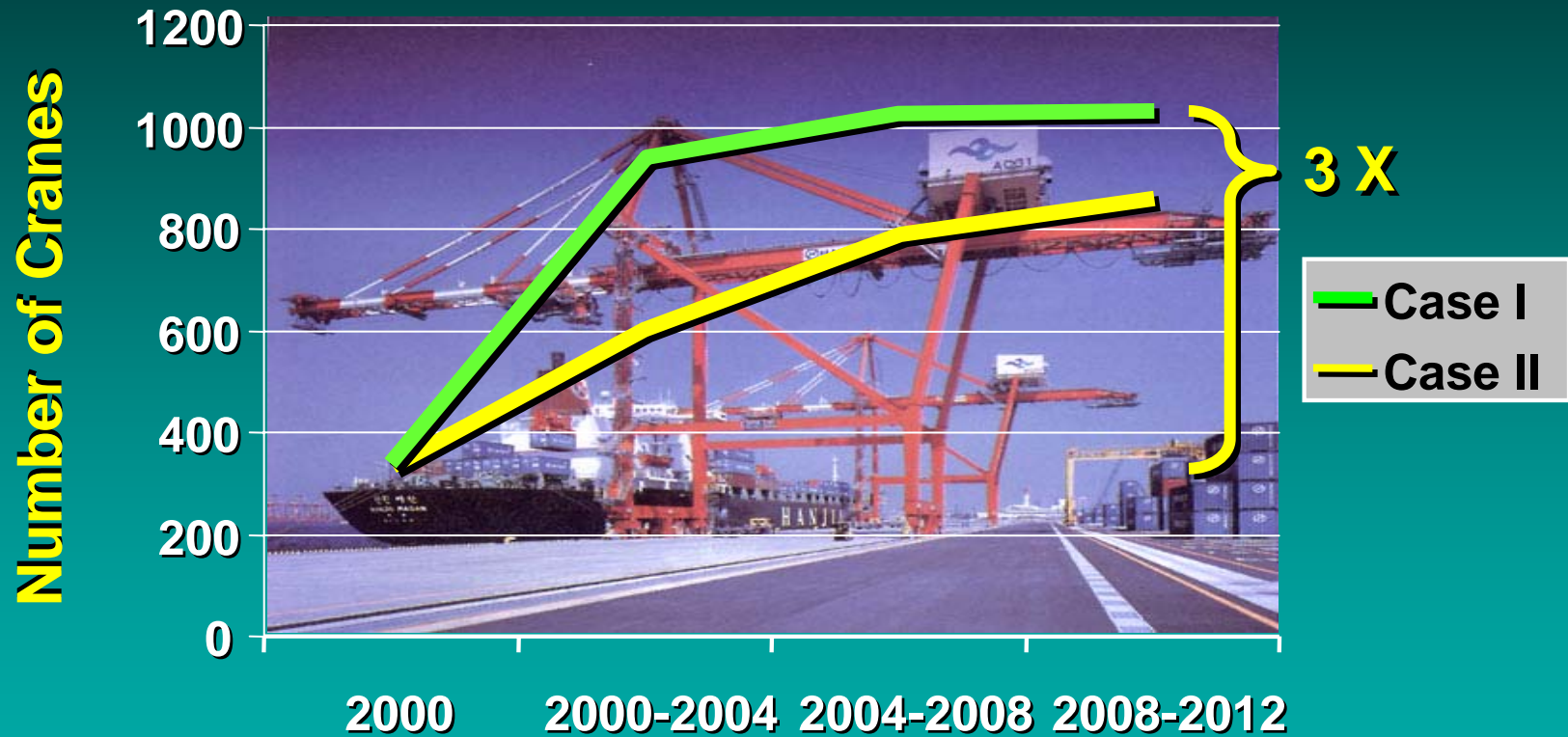


**Third Generation Post Panamax (1986)**  
(Cost in 1986 - \$3,600,000-6,000,000)  
(Current Cost - \$5,000,000-8,000,000)



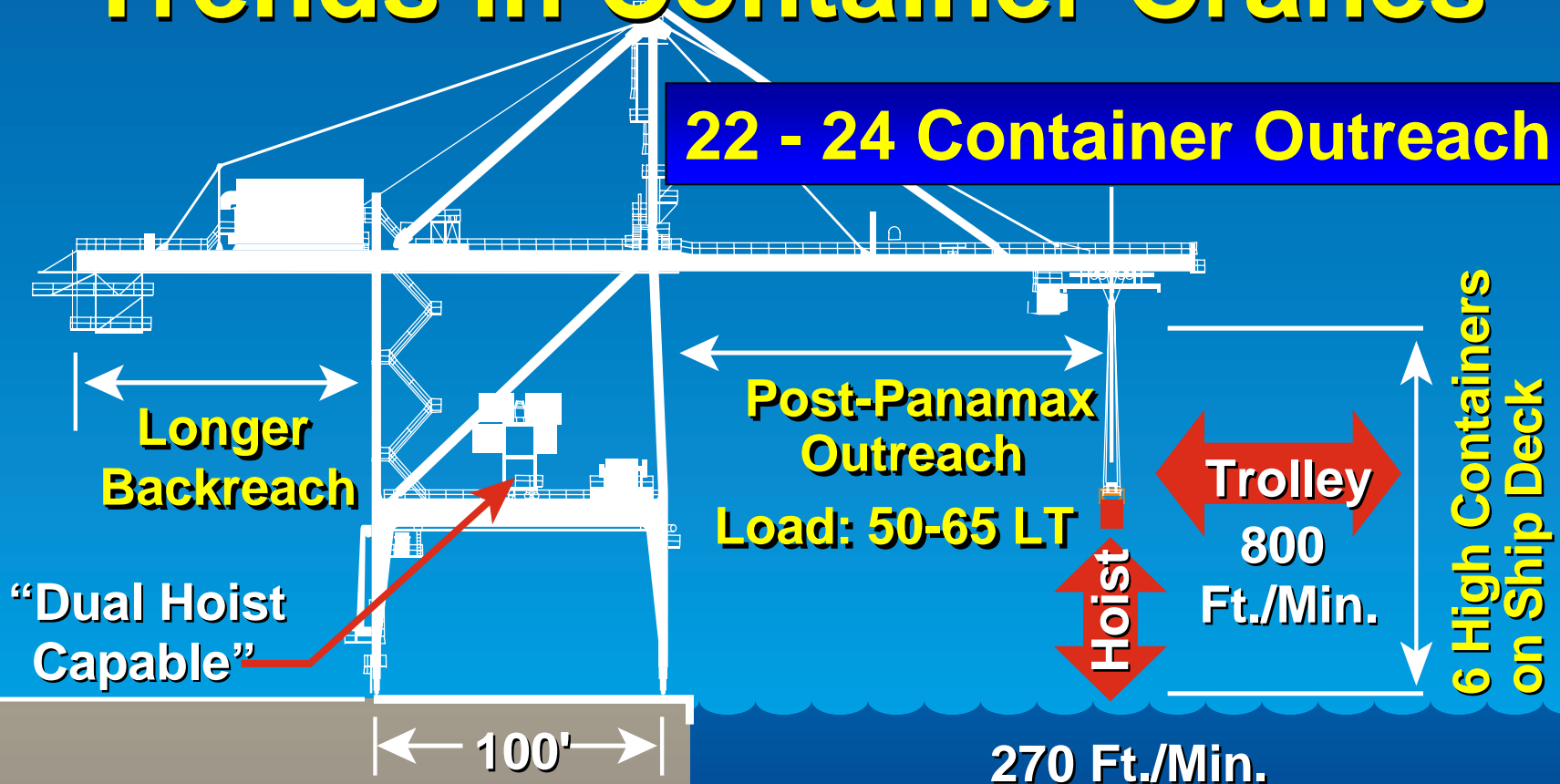
**Fourth Generation  
Post Panamax Plus (2000 - ?)**  
(Cost > \$8,000,000)

# World Container Gantry Crane Forecast



Source: Ocean Shipping Consultants, Dec. 1999

# State-of-the-Art Operating Trends in Container Cranes



## Automation Trends:

Digital Controls; Anti-Sway System;  
Anti-Snag System; Anti-Collision System

A large, powerful blue wave crashing over a rocky shore. The water is a deep blue color, and the wave is breaking over a dark, rocky outcrop. The sky is bright and overcast. The overall scene is dynamic and energetic.

# **Fast Ship Technologies**

# FastShip Technologies



**US Navy Fast Frigate Circa 2035**

# U.S. Navy's Newest Carrier John C. Stennis (CVN-74)



## Nimitz Class Carrier

<b>LOA:</b>	<b>1040 ft.</b>
<b>Beam:</b>	<b>134 ft.</b>
<b>Speed:</b>	<b>30+ knots (Classified)</b>
<b>Displacement:</b>	<b>91,487 tons</b>
<b>Power Plant:</b>	<b>2 Nuclear Reactors (280,000 shaft HP)</b>

**CVN-74 in a 14 Degree Roll During Sea Trials**

# USDOD Joint logistics Over the Shore (JLOTS)



**US Navy LCAC  
40+ Knots**

# Current High Speed Vessel Technology



# **International High Speed Ferry Rochester, New York – Toronto, Ontario**

## **Vessel & Operating Scenario**



**Two 86m Catamaran HSC**

**700 passengers, 200 vehicles**

**10 Commercial Trucks or Tour Buses**

**Roll-on / Roll-off Configuration**

**Speed 42 knots**

**Travel time – 2 hours**

**Year round operation**

**6 Round trips per day**

# New High Speed RO/RO Fast Feeder Service 4500 Ton Displacement Electric Trimaran

(DERA: Britain's Defense Evaluation and Research Agency)



**The New Breed of Short Sea Shipping Vessels**

(DERA RV Triton: \$25 Million, 135 M LOA,  
35 M Beam, 4.5 M Draft, 500 Nautical Mile  
Source: DIMEX Navigation LLC

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# High Speed Ships 40-60 Knots

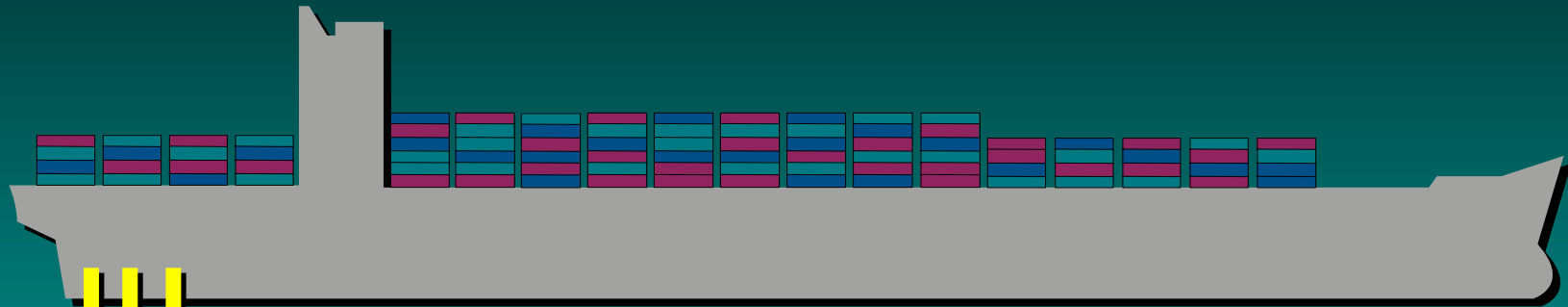
## FastShip Incorporated (FSI)



# FastShip Service Characteristics

- **Ocean Speed: 45 knots** (37 operational)
- **Payload: 10,000 Tons/2 Million Cubic Ft.**
- **Design: Monohull, “Semi-Planing” (SPMH)**
- **DWT: 30,000 Tons**
- **Propulsion: 8-GE LM6000 Marine Gas Turbines (CF6 Aircraft Engines with Marine Diesel or LNG Fuel)**
- **High Seakeeping Capabilities: 40 Knots, 95% North Atlantic Weather with Waves to 20 Ft.**

# FastShip Patented Hull Form & Propulsion Technology



**SPM Hull Design**

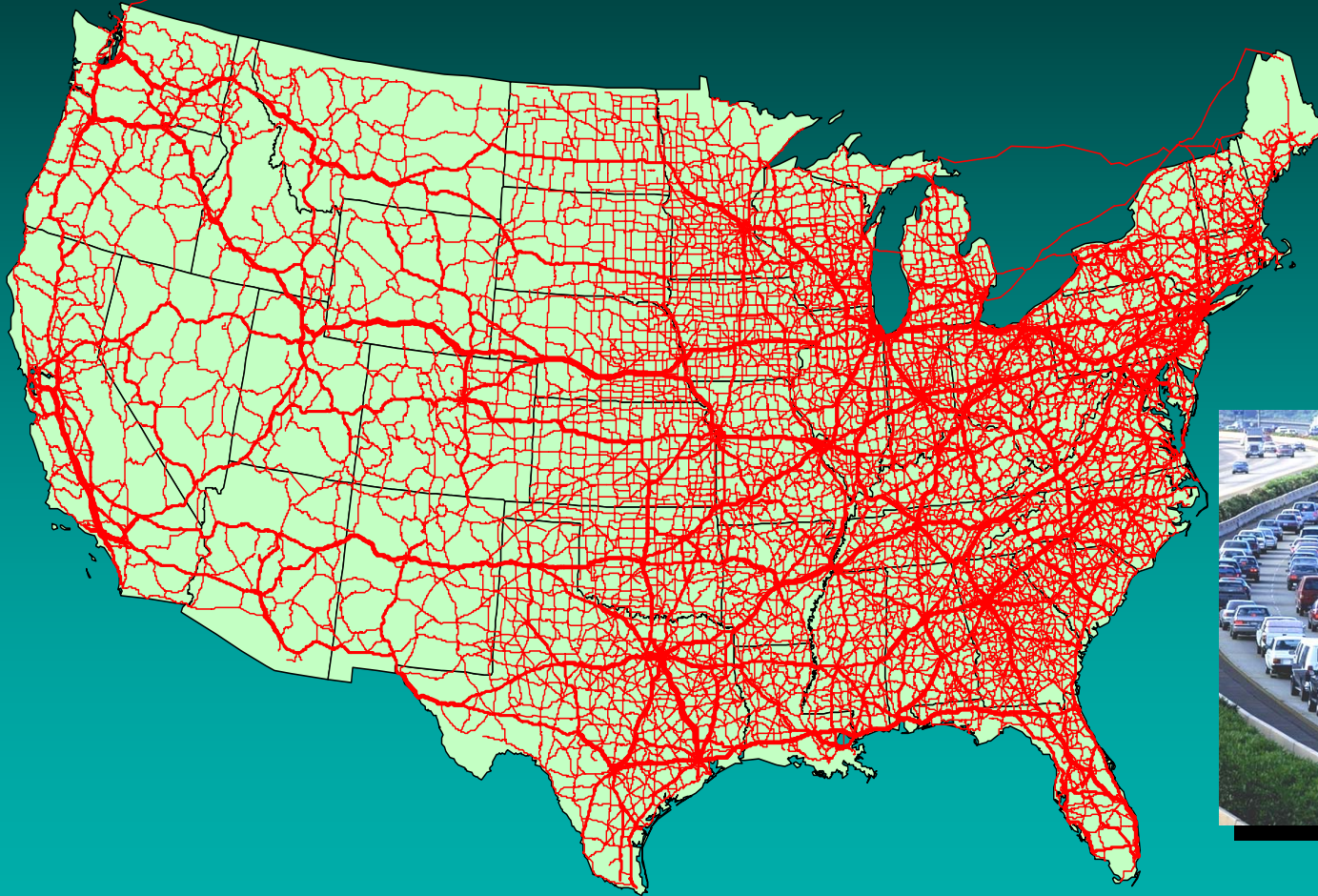
**Gas Turbine**

**Water Jet**

A large, powerful blue wave crashing over a rocky shore. The water is a deep, vibrant blue, and the wave is curling over, creating a white foam. The background shows a rocky coastline under a bright sky.

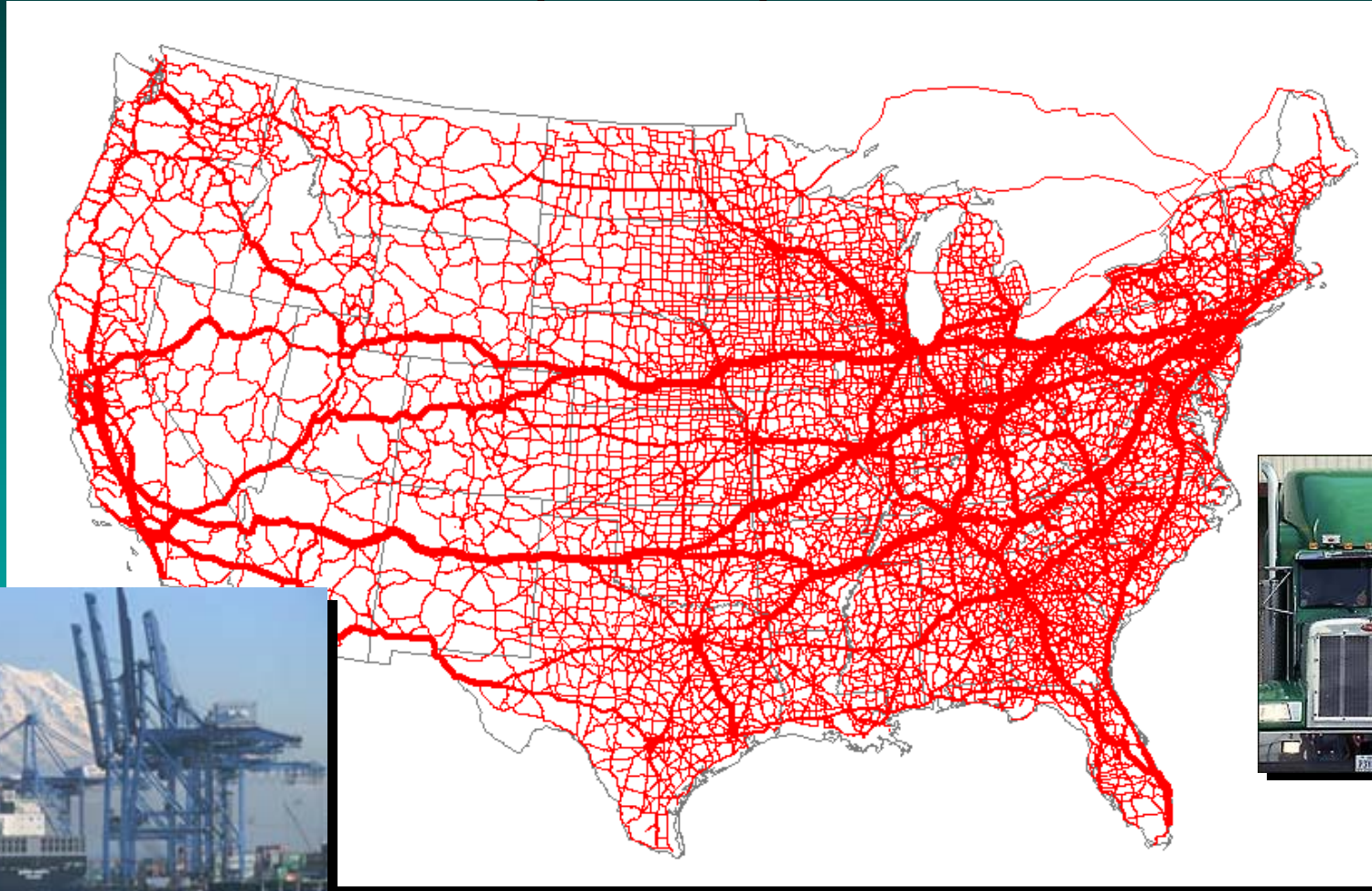
# **North American Domestic Truck Growth**

# 2020 Truck Traffic Growth on Highways (Density of Incremental US Truck Tons)



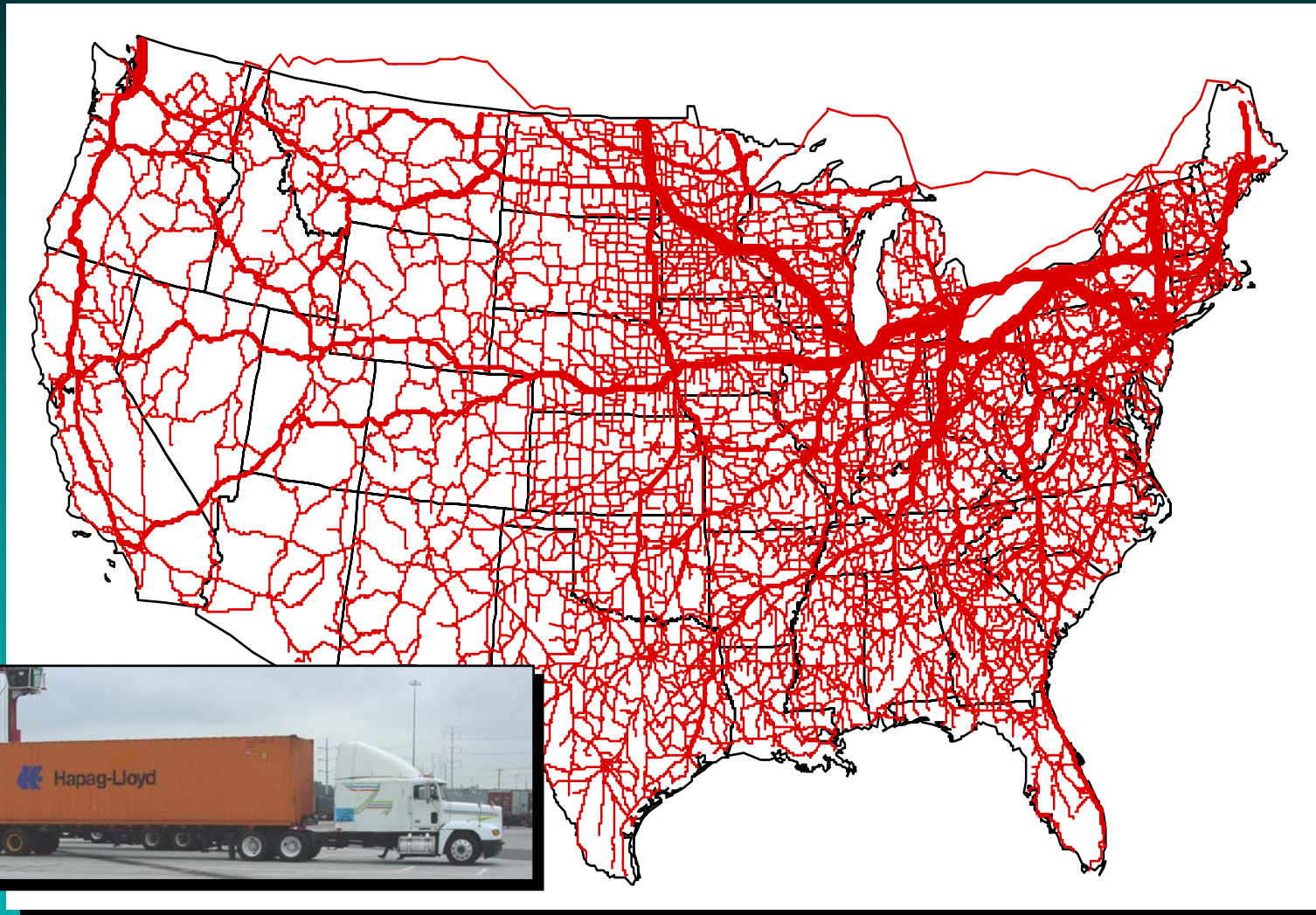
Source: USDOT FHWA Freight Analysis Framework

# 2020 Truck Freight Flows High-Value & Time Sensitive Products (in Tons)



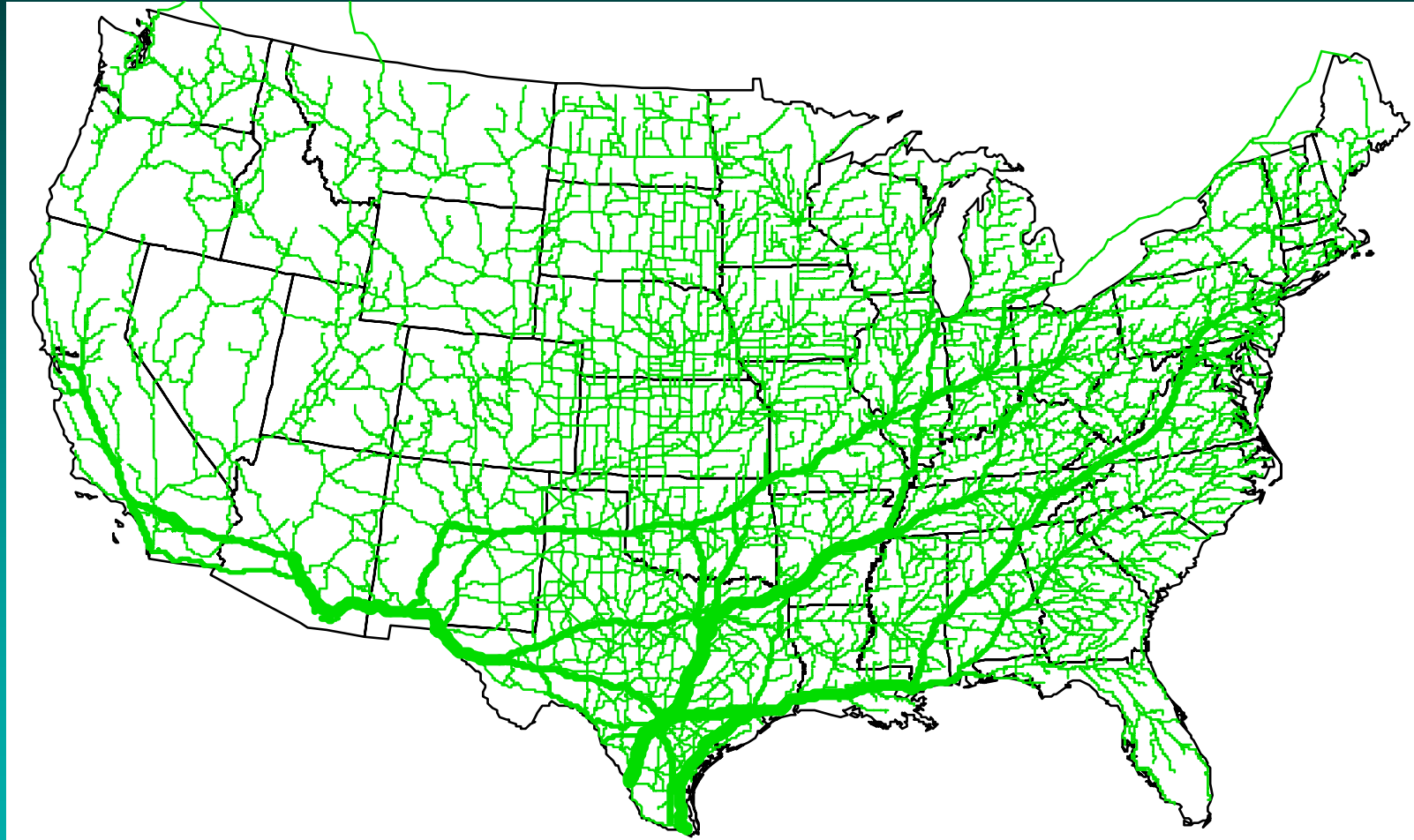
Source: USDOT FHWA Freight Analysis Framework

# 2020 NAFTA - US/Canada Truck Traffic US Highway Network (Tons)



Source: USDOT FHWA Freight Analysis Framework

# 2020 NAFTA - US/Mexico Truck Traffic US Highway Network (Tons)




Source: USDOT FHWA Freight Analysis Framework



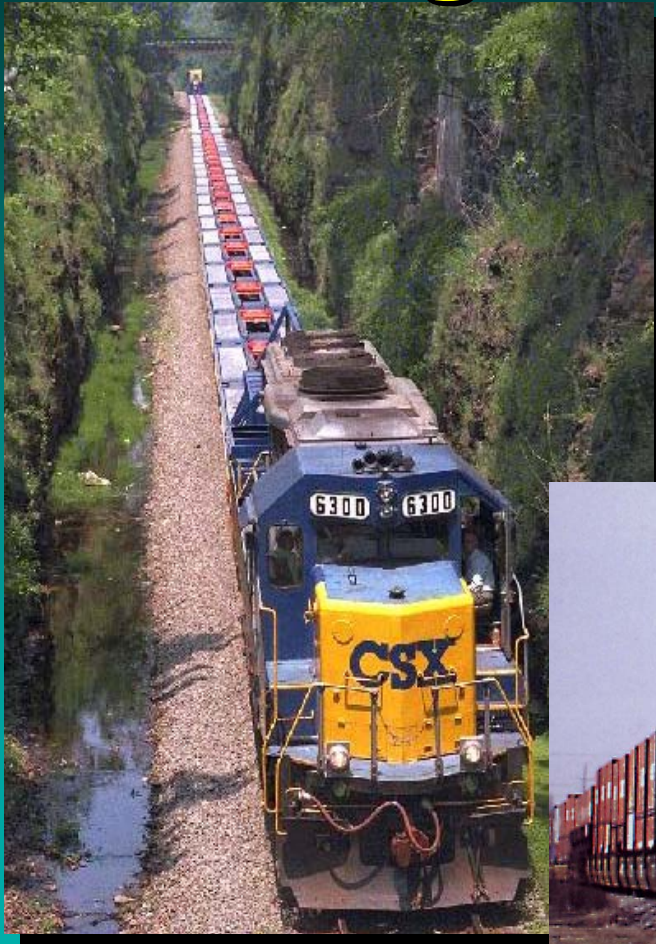
Source:  Port of Portland, Oregon

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**North American  
Class I Rail &  
Intermodal Growth**

# North American Intermodal Rail Freight Movement Trends





# **The Railroad Industry... Since the Staggers Act:**

**35% less track**

**32% fewer locomotives**

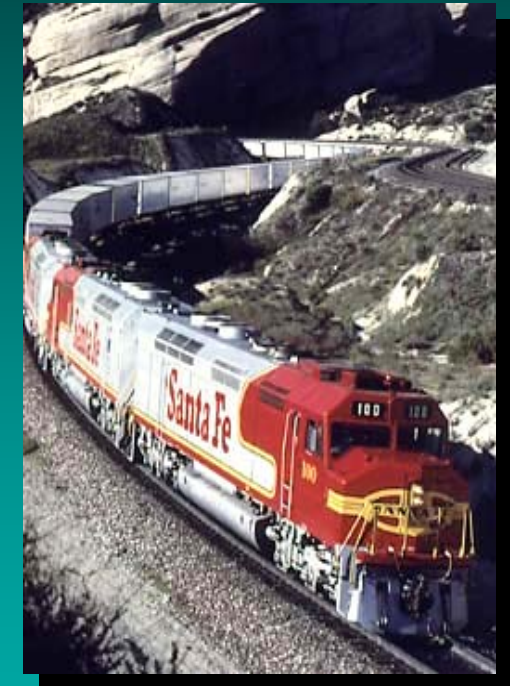
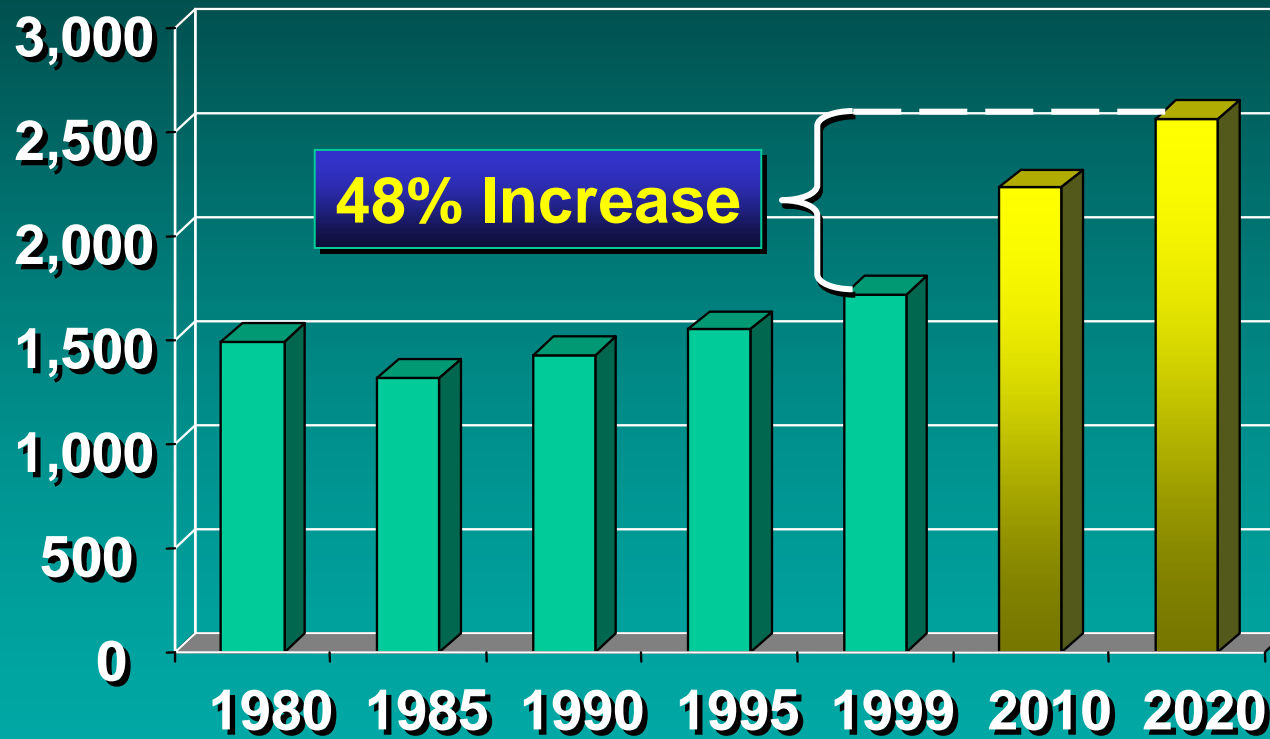
**27% fewer railcars**

**60% fewer employees**

**But:**

**well over 50% more freight!**

# 2020 Forecast of US Rail Traffic (By Origins in Millions of Tons)



Source: FHWA Multi-Modal Freight Analysis,  
Framework Project using Reebie Associates 1998 data

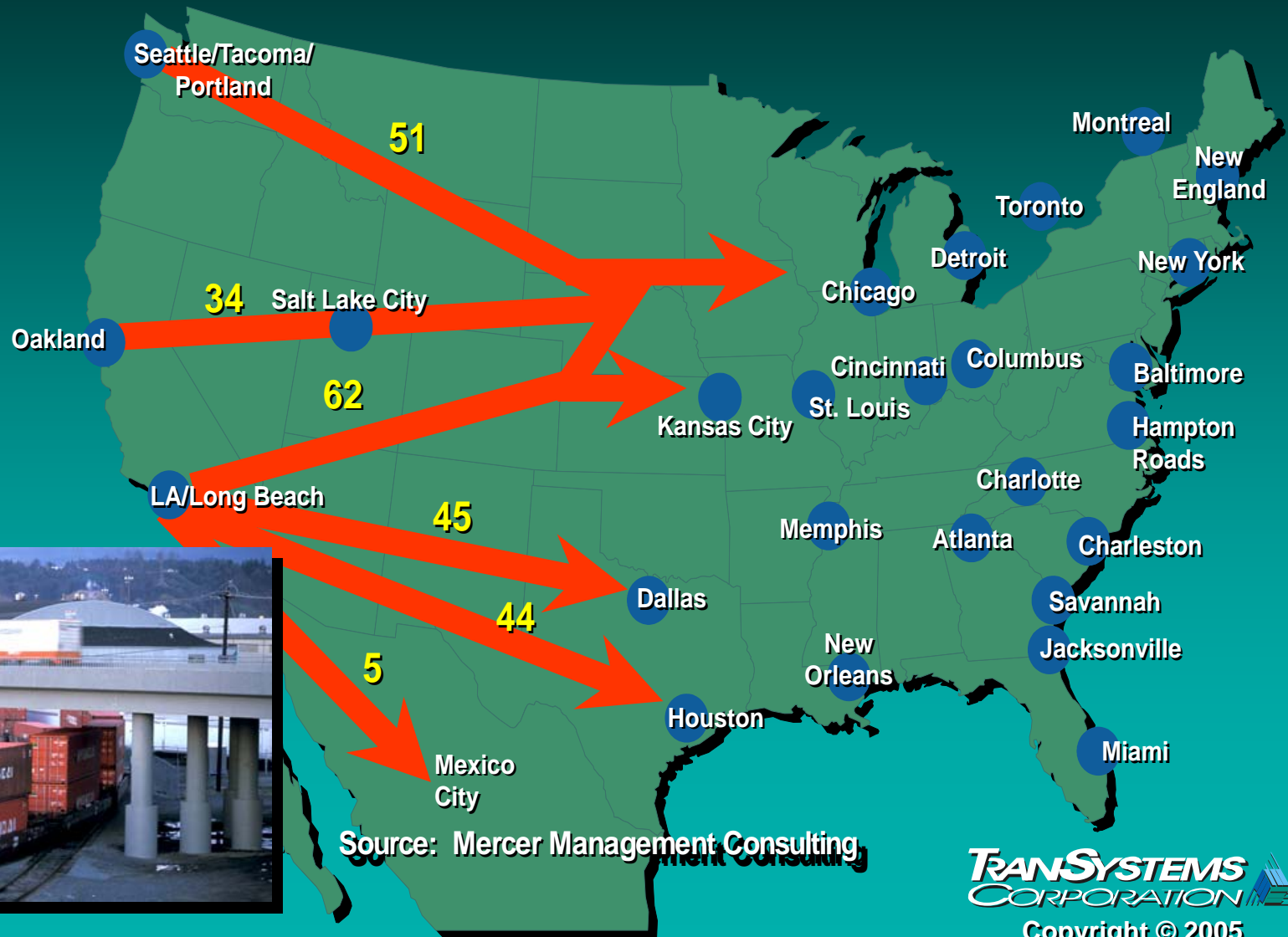
# Weekly Eastbound Double-Stack Services — April 1984 (1 Set)



Source: Mercer Management Consulting

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# Weekly Eastbound Double-Stack Services — April 1993 (241 Sets)



# Emerging New North-South Double Stack Intermodal Rail Corridors



\* for the region

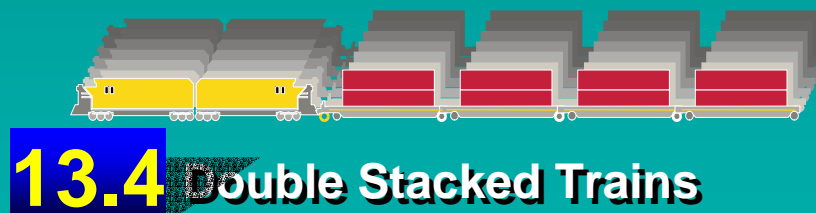
Source: Double-Stack Container Systems:  
Implications for U.S. Railroads  
and Ports, U.S. DOT/VZM/TranSystems

# U.S. Double-Stacked Train System



East-West 10,000 ft Train Bypass

# A 10,000 TEU Mega-Container Vessel Can Produce High Intermodal Rail Volumes (One Weekly Vessel Call)



**75% Intermodal Split**



# **Container Dwell:**

**The Average Length of Time an Average Container Remains on the Terminal**

**U.S. Marine Container Terminal Dwell:**

**6 to 8 Days  
(Average)**



**U.S. Intermodal Rail  
Terminal Dwell:**

**1 1/2 - 2 Day (Average)**

**When You Reduce Terminal  
Dwell by One Half**

**You Double the Terminal  
Throughput...without Building!**

A large, powerful blue wave crashing over a rocky shore. The water is a deep, vibrant blue, and the wave is curling over, creating a white, frothy crest. The background shows a rocky coastline under a bright sky.

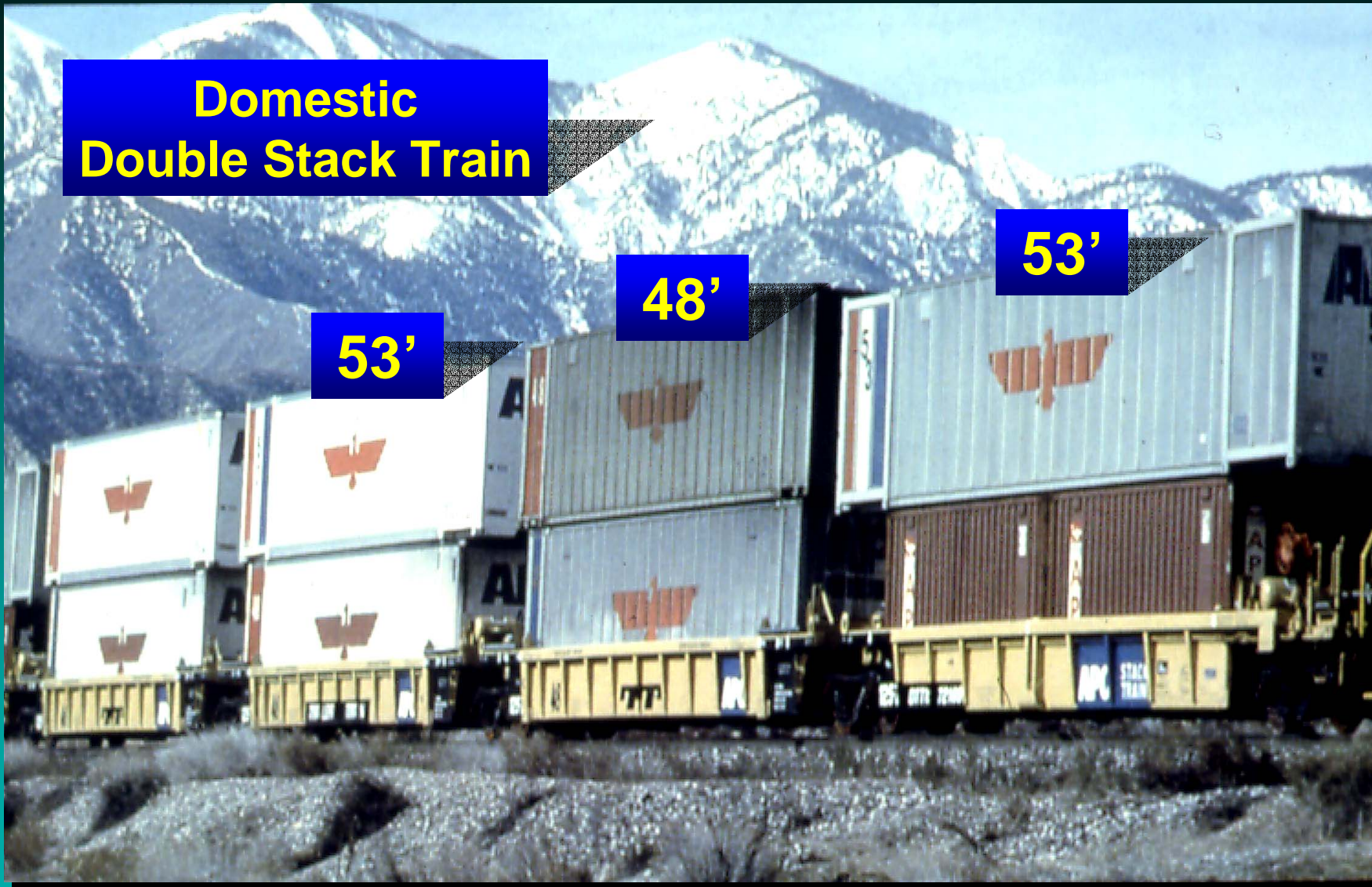
# **Domestic Intermodal Technologies**

# Domestic Double Stack Train

53'

48'

53'



**C. H. Robinson  
Triple Stack**





**NS Triple Crown Service**

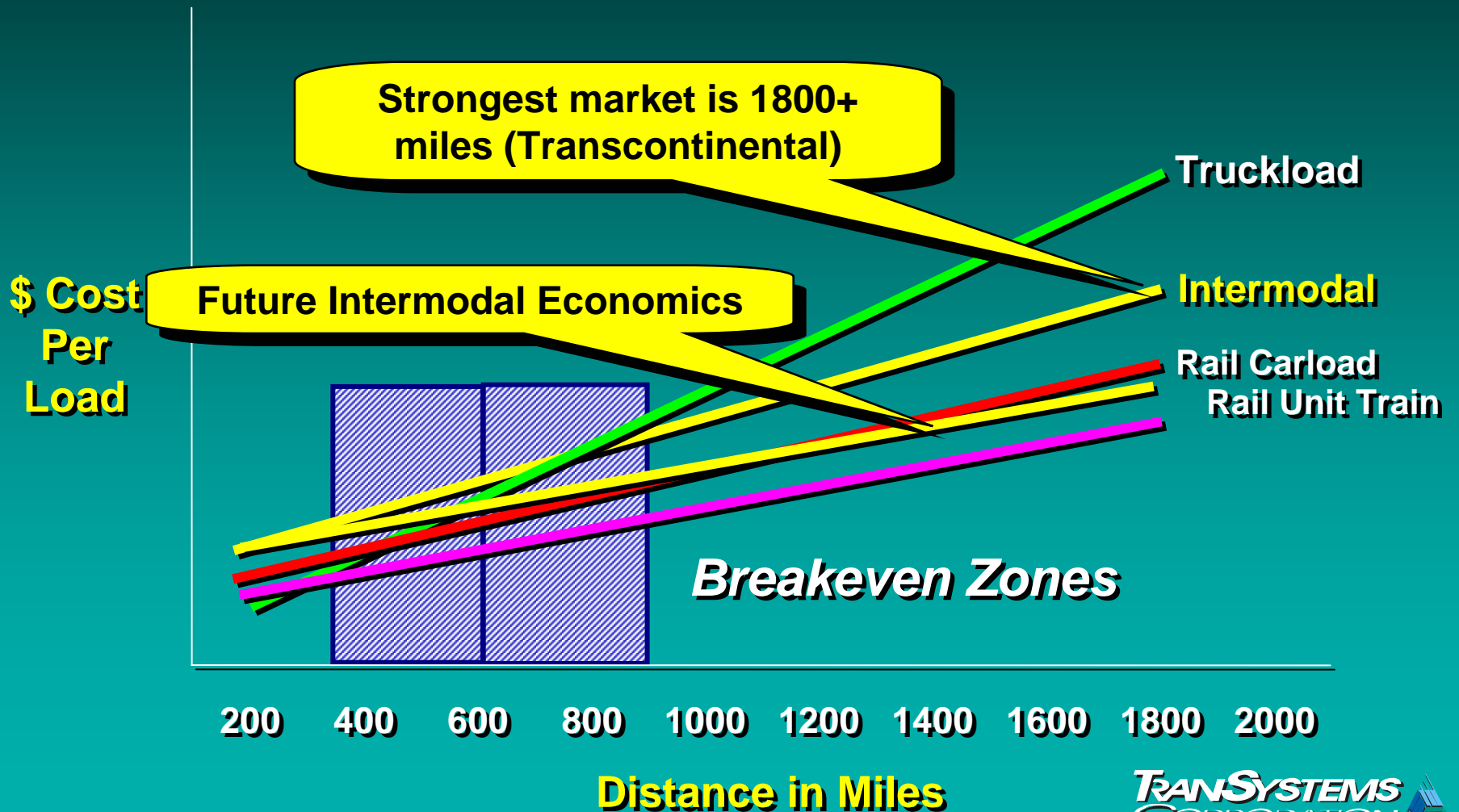
# Mark IV Roadtrailer



# Mark V Roadrailer



# Intermodal's Price/Cost Advantage Over Truckload is Greatest Over 1000 Miles . . .





# **Emerging Information Technologies (IT)**

# The Burden of Paper...

*“Loading and discharging a 5,000 TEU ship involves close to **40,000 documents** and some 6,000 to 7,000 customs transactions...”*

*“The average F.O.B. value is **U.S. \$60,000 per TEU**”*

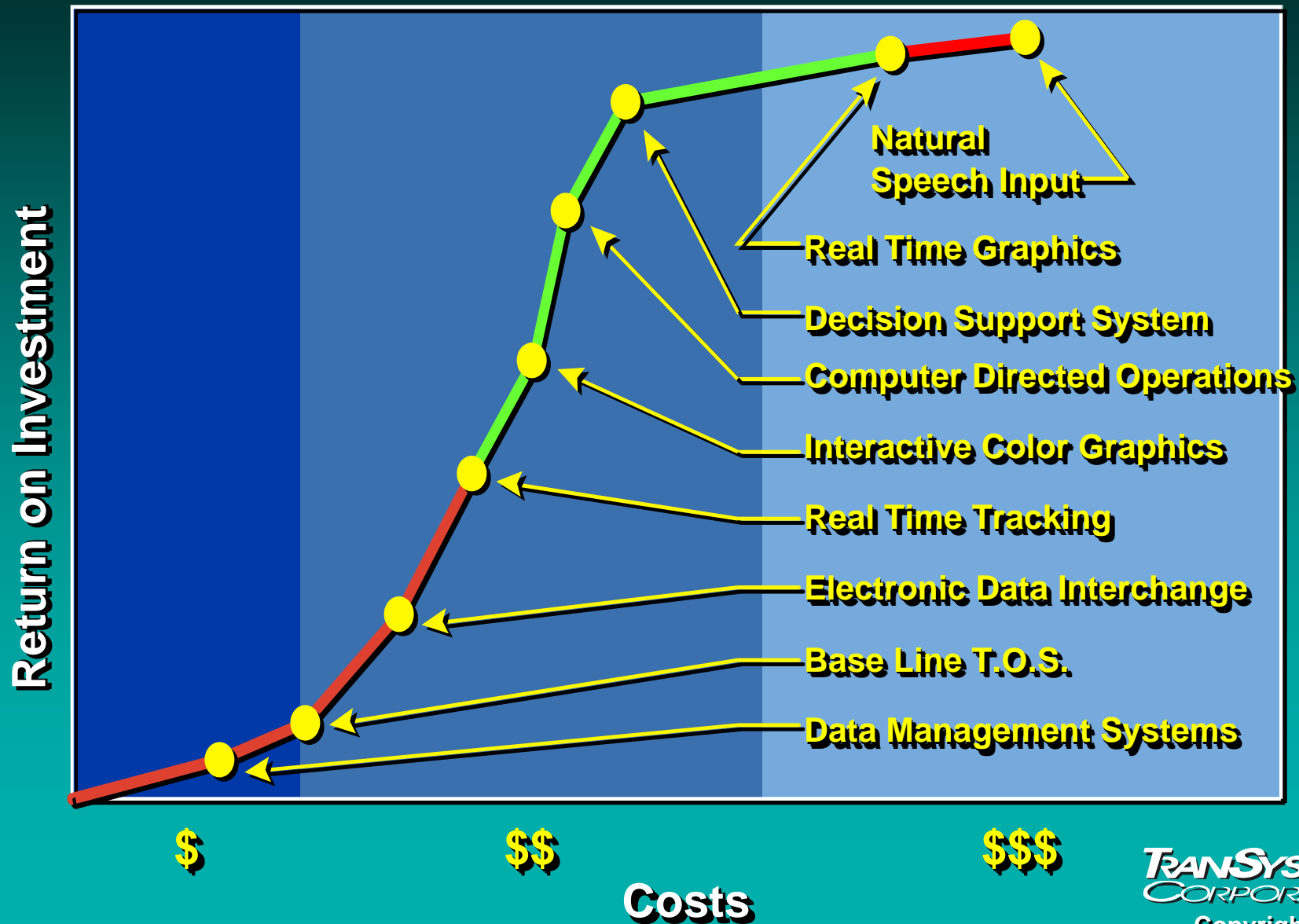
C. C. Tung  
Chairman and CEO  
Orient Overseas Ltd. (OOCL)

# Information Technology (IT) Advances & Impacts

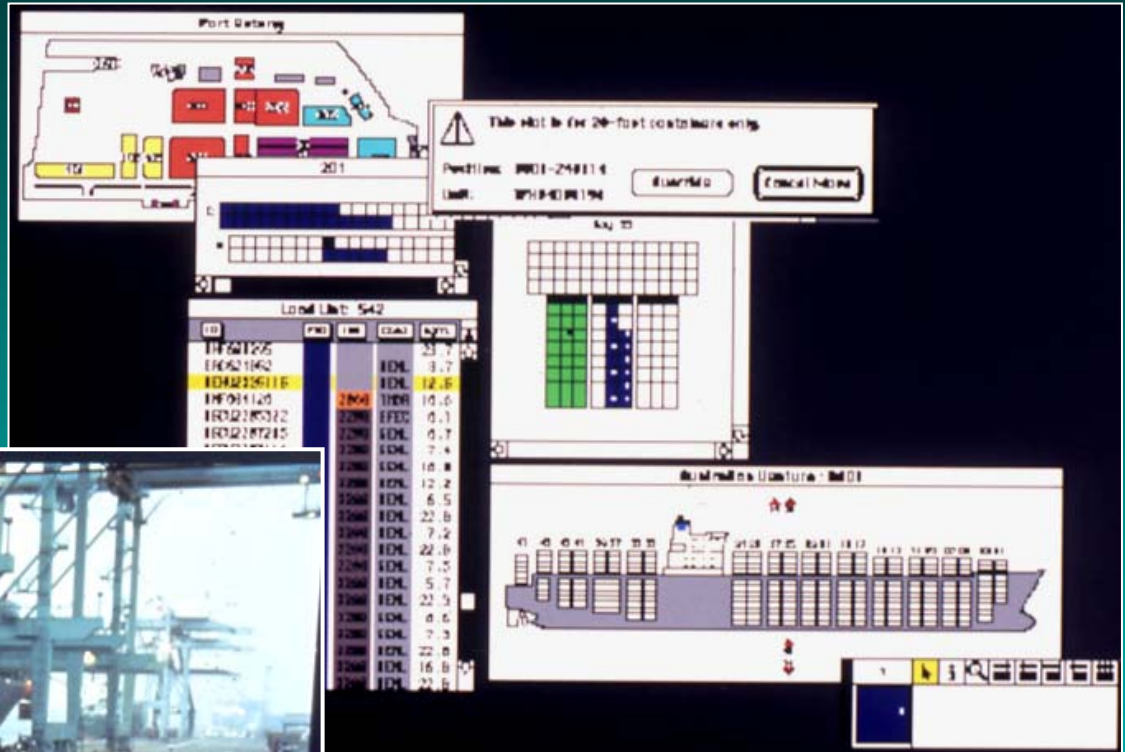
Information Technologies (IT) and B To B (business to business) E Commerce (internet) advances will force dramatic fundamental changes in the shipping industry.

- a) **24hr - 7day Operations** will be the norm
- b) **Service Redesign:** frequent, faster cargo delivery, when the customer places an order

# Evolving Terminal Information Technology Operating Systems



# Synchronized Planning and Real Time Control Systems (SPARCS)



**A leader in Marine  
Terminal Systems  
Integration**

# Intermodal State-of-the-Art IT Systems



**OASIS is the leading intermodal terminal control system in the world.**

**Installed base:**

**83 intermodal terminals**

**14 million lifts per year**

**25 million gate moves per year**



**Driver Automated Gate (DAG)**

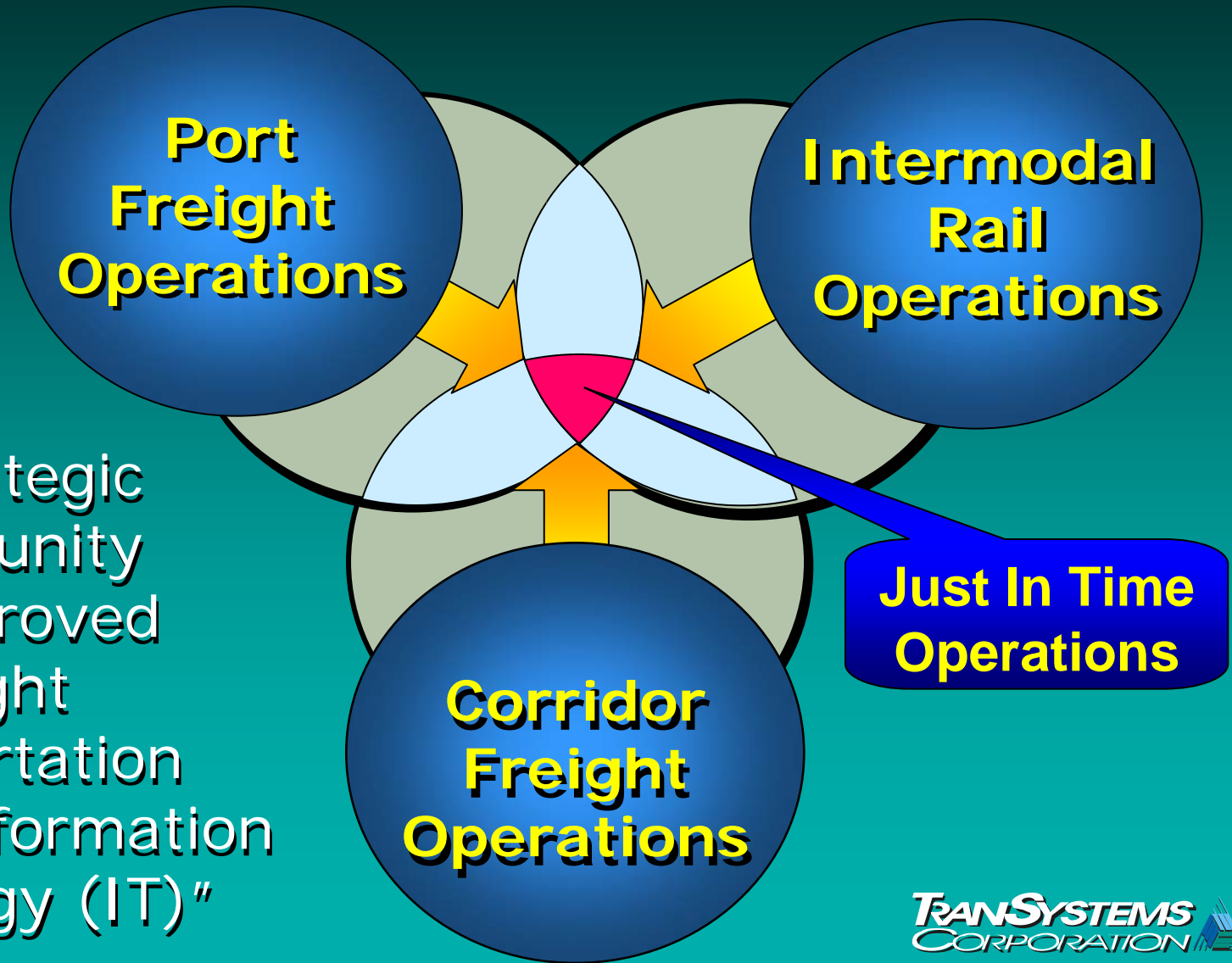
Source: Optimization Alternatives Limited, Inc.

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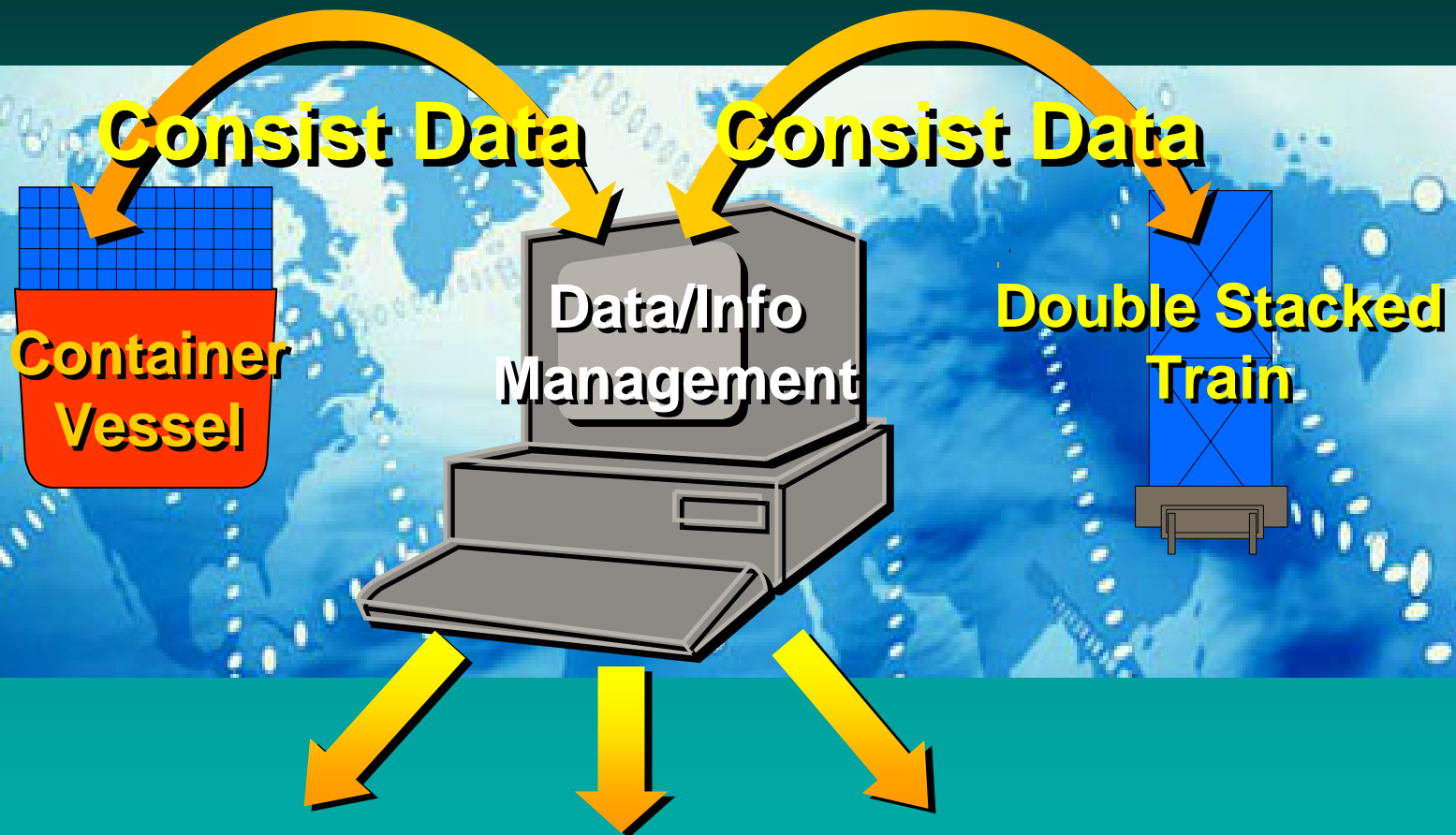
# USDOD Agile Port Information Technology (IT) Developments

# Agile Port Systems: A NEXUS for Efficient System Wide Freight Transport



"A Strategic Opportunity for Improved Freight Transportation Through Information Technology (IT)"

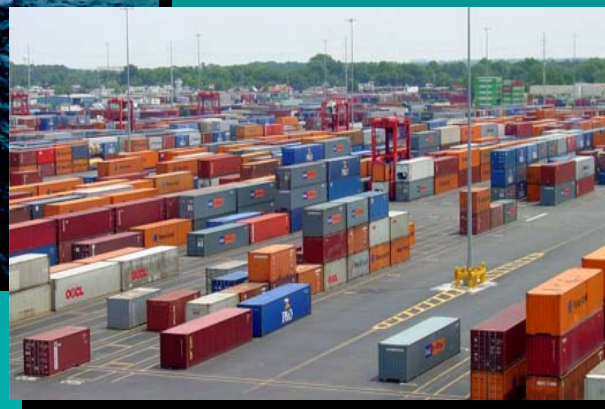
# IT Data/Information Integration



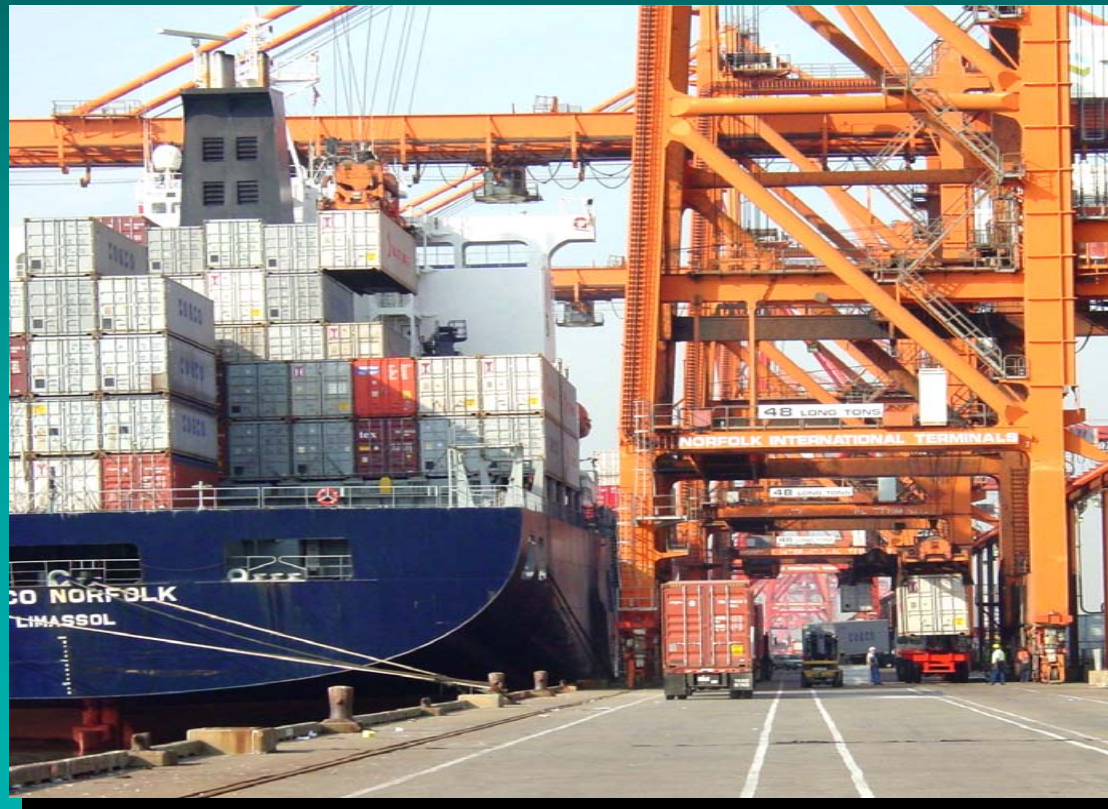
## Major Terminal & Systems Benefits

# ***The Agile Port Concept is not a new technology...***

***...It is a way of managing and organizing information to reduce container port terminal dwell time & increase terminal capacity.***

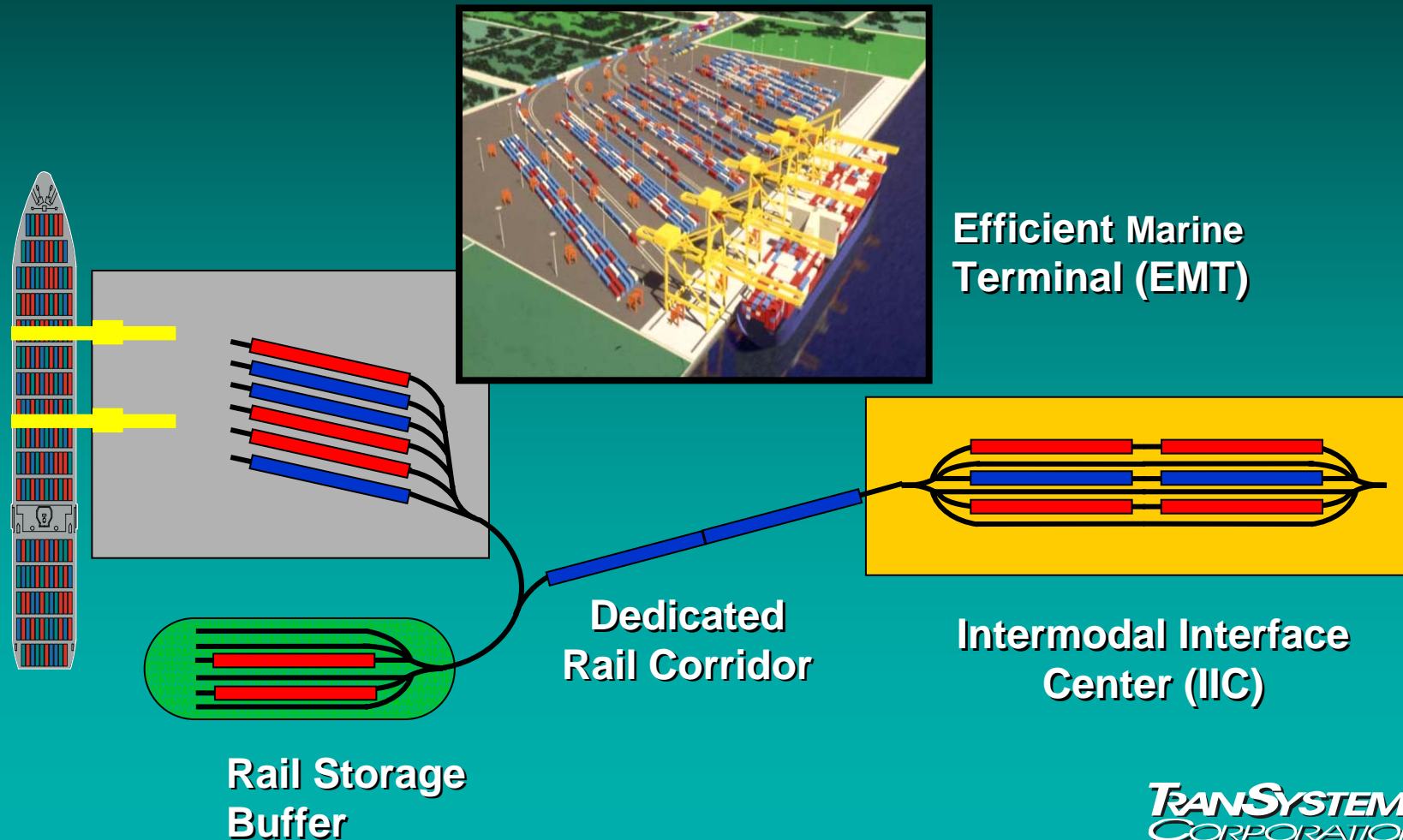


**Better organized, accurate and timely information between ship and rail can increase the “velocity” of a container through a terminal without changing equipment, management or labor.**

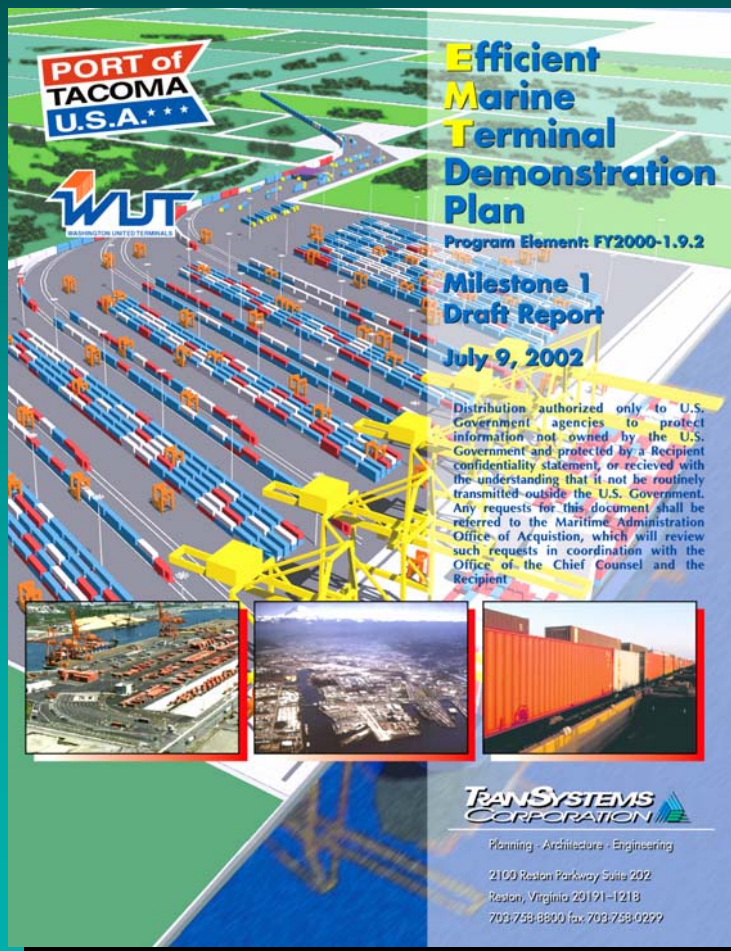


# Agile Port Concepts

## *Integrating Vessel and Rail Information Systems*



# Port of Tacoma Agile Port System Demonstration Plan



## Participants

CCDoTT

USDOT MARAD

USDOD USTRANSCOM

ILWU

Port of Tacoma

Hyundai

Washington United Terminals

TranSystems

Automation Associates

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**In March 2003  
The ILWU President and  
The ILWU Coast Committee  
Agreed to become a Key Stakeholder in  
and active participant of:  
The Agile Port Demonstration Project  
Port of Tacoma**

# USDOD Agile Port Technology Full Scale IT Demonstration Project



**Hyundai Terminal  
Washington United Terminals  
Port of Tacoma  
July 2003**

**Potential: Doubling the  
Terminal Capacity without  
Building Anything**

# North American Competitive Freight Transport Mandates

- Ports & intermodal linkages must change the current **cost** versus **value** relationship in the logistics chain. **Become Value Added Multipliers...** Through Innovative Public Private policy initiatives, expanded Federal funding options and inspired labor & management partnering.
- Successful ports & intermodal terminals in the next decade must **invest in and leverage technology** to improve terminal productivity, cost, effectiveness and reliability for all modes of transportation...**securely**.



# *2005 Executive Management Conference*

May 2, 2005

Saddlebrook Conference Center, Tampa, FL



# **Planning for Future Transportation Technological Change**

*Thank You*

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