VOLUMES, COSTS, ALTERNATIVES

The world's most famous waterways, the Suez and Panama canals, have been rivals for over a century. But the flows are now changing, says **Stevie Knight**

"Taking a well-known yardstick, the Hong Kong to New York route, there is not much difference between the canals, transit time-wise," says Nivesh Chaudhary of ASCELA Advisors. "Assuming a typical call along the way, the duration is roughly the same, 640 to 660 hours," he says, the Panama route being 11,200 nautical miles (nm), the Suez route coming in at 11,600 nm.

"Five years ago, the canals saw yearly aggregated services capacity of around 2.5 million and 2.4 million TEU, with the Suez a little ahead," explains Darron Wadey of Dynamar, adding "It's bigger ships lowered slot costs, offsetting somewhat higher charges and slightly longer run time."

ALTERING THE DYNAMICS

But then two things began to alter the dynamics. In 2016, the Panama Canal commissioned its new set of locks.

Expansion released the Panama Canal from its previous 5000TEU limit, triggering immediate vessel size uptick, explains Wadey confirming that by 2020 the average boxship – across both canals – was 40 per cent larger, at around 10,000TEU. Despite service and vessel numbers dropping significantly, (by 17 per cent and 18 per cent), he says that annual trade capacity simultaneously "grew spectacularly, rising by nearly half again".

However, the Panama Canal routing has actually sliced a big chunk from the Suez Canal's share of North America East Coast cargo. "The number of services sailing to North America via Suez has reduced by nearly 40 per cent," Wadey explains.

Although the Suez Canal authorities are filling the gaps left by containerships by offering cheaper deals to tankers and energy carriers, Wadey confirms that, "Its annual container trade capacity has still dropped by close to a fifth". In contrast, "Both average vessel size and annual capacities on the Panama Canal route have more than doubled," he adds.

So, why has the Panama Canal won over so much of the container market?

While the Suez Canal option is better for countries such as Vietnam and those southeast of Hong Kong, cargo on the China to US route is more likely to come from the manufacturing powerhouses further north, such as the ports of Dalian, Ningbo, Shanghai, while others in the Bohai region are actually closer to the Panama Canal route.

WAITING GAME MEANS COST

However, there is a third metric for shippers which could impact this trend, namely transportation time and, specifically, waiting time.

Here, the Panama Canal's recent performance has been distinctly lacklustre, as Chaudhary explains. "Panama's water levels have not been that great, certainly not what they are supposed to be. The area suffers a cyclic, six to seven-year El Niño related drought. However, recently these low-water periods have become more frequent and more problematic. Last year saw 20 per cent below average rainfall, depleting the Gatun and Alhajuela Lake reservoirs, which fill the locks."

As a result, things have slowed down. "It is supposed to be a nine to ten-hour transit, but it is taking double that these days," says Chaudhary. Moreover, temporary limits on draft and available slots have increased the queues, so although the larger, New-Panamax ships transiting the bigger lock can often get through in a day-and-a-half, "At time of writing container vessels are observing waiting-times as long as 10 days for the Panamax locks, from the previous normal of three to four days," he confirms.

■ **Transiting through Panama is cheaper, but involves a longer wait compared to the Suez option**

This situation results in additional costs which are being passed onto the ships. Likely to be in place for several years, this freshwater charge adds an extra $10,000 to the price, with an additional fee based on the reservoir levels at time of crossing.

The Panama Canal Authorities are acutely aware of this issue and have issued an RfP for water management solutions to improve the quantity, quality and control of its water supply, citing that there is a "need for a new water management system due to drought and water level drops" of major lakes in Panama.

The Suez Canal could potentially pull back some of the lost volumes if the situation continues. It has not hit size limits, accommodating the 23,000TEU vessels now in service and there have been recent upgrades. The Suez Canal Axis, a 35km parallel cut, and the separate two-way passage along the channel to Port Said, have both helped to halve the day-long transit time and drop the wait to just a few hours.

However, the total charges on both routes are significant, as the calculations from ASCELA Advisors show. "At present, a Panama Canal transit will cost something in the range of US$780,000 for container ships of 13,000TEU capacity," says Chaudhary. It is higher through the Suez Canal, he adds. "For a similarly-sized vessel, charges come to around US$830,000."

ASCELA Advisors - Cost comparision for Suez, Panama, and alternative routes

Note- Broad cost estimate; doesn't include cost of interchange of cargo from ship to truck/rail and vice-versa

A Transmodal

Hong Kong - New York - Montgomery

		Mode	Port of shipment	Port of arrival	Distance (nm/miles)	Unit transport cost (USD)	Toll charges (for 13,000 TEU)	Voyage cost (USD)	Total Cost (USD)	Cost/TEU	Duration (in hours)	Total duration (in hrs)
1	**Panama Canal**	Sea	Hong Kong	New York	11,207 nm	2,140 USD/TEU	7,80,000	2,22,56,000	2,30,36,000	**2,220**	640	**640**
1a		Land	New York	Montgomery, US	1,025 miles	2.15 USD/TEU/mile	-	2,29,19,000	4,59,55,000	**4,420**	57	**697**
2	**Suez Canal**	Sea	Hong Kong	New York	11,593 nm	2,140 USD/TEU	8,30,000	2,22,56,000	2,30,86,000	**2,220**	660	**660**
1a		Land	New York	Montgomery, US	1,025 miles	2.15 USD/TEU/mile	-	2,29,19,000	4,60,05,000	**4,420**	57	**717**

B Multimodal

Hong Kong - Los Angeles/New York - Montgomery (Road)

		Mode	Port of shipment	Port of arrival	Distance (nm/miles)	Unit transport cost (USD)	Toll Charges	Voyage cost (USD)	Total Cost (USD)	Cost/TEU	Duration (in hours)	Total duration (in hrs)
3	**Intermodal System** (Sea+Road)	Sea	Hong Kong	Los Angeles	6,400 nm	1,300 USD/TEU	-	1,35,20,000	1,35,20,000	**1,300**	350	**350**
3a	**Additional haulage**	Road	Los Angeles	New York	2,812 miles	2.15 USD/TEU/mile	-	6,28,76,320	7,63,96,320	**7,350**	92	**442**
		Land	Los Angeles	Montgomery, US	2,080 miles	2.15 USD/TEU/mile	-	4,65,08,800	6,00,28,800	**5,770**	78	**428**

Hong Kong - Los Angeles/New York - Montgomery (Road + Rail)

		Mode	Port of shipment	Port of arrival	Distance (nm/miles)	Unit transport cost (USD)	Toll Charges	Voyage cost (USD)	Total Cost (USD)	Cost/TEU	Duration (in hours)	Total duration (in hrs)
4	**Intermodal System** (Sea+Rail)	Sea	Hong Kong	Los Angeles	6,400 nm	1,300 USD/TEU	-	1,35,20,000	1,35,20,000	**1,300**	350	**350**
4a	**Additional haulage**	Rail	Los Angeles	New York	2,812 miles	1.90 USD/TEU/mile	-	5,55,65,120	6,90,85,120	**6,640**	71	**421**
		Rail	Los Angeles	Montgomery, US	2,080 miles	1.90 USD/TEU/mile	-	4,11,00,800	5,46,20,800	**5,250**	62	**412**

Note
Vessel capacity assumed 13,000 TEU
Average speed on road 50 mph (USDOT)
Average speed on rail 80 mph (UNECE)

■ **Comparison of the numbers – according to ASCELA Advisors**

ALTERNATIVES?

Shippers are obviously interested in alternatives. Back in 2015 the overall transpacific route, including the North America West Coast, generated 13.2 million TEU in annual trade capacity, confirmed Wadey.

Despite gradual erosion by both the canal routes (around 6 per cent so far), the Far East to US West Coast trade is still relatively healthy. It is also around a third cheaper to sail to Los Angeles/Long Beach, so, the question has to be, is it worth stopping there and moving deep inland to reach the US East Coast's hinterland?

Based on ASCELA Advisors' calculations, the sea leg can be as short as 360 hours "so it looks attractive," says Chaudhary, at least at first glance. But moving on from Southern California, the necessary intermodal transfers add time, cost and effort, meaning that "trucks and rolling stock need to be coordinated," he explains.

Consequently, total time ends up being rather costly. The journey to New York comes in at little over 400 hours, although it works out at US$6,640 per TEU.

However, there's more to life than New York. Getting to, say, Montgomery via Los Angeles and moving on by train takes around 410 hours for a total of US$5,250. This begins to look interesting against the overall Panama Canal journey to the same place, which while totalling US$4,420 per TEU, actually takes around 700 hours in total.

It is also not a large-scale solution as there are practical limits. "Even if only 80 per cent of your cargo is going on to the East Coast, you'll probably need several thousand trucks to unload a 13,000TEU ship," Chaudhary points out. So, despite the efficiencies of the US road and rail network, it probably will not replace the big vessel transits, but it does "still make sense" for smaller volumes, he adds.

While bunker prices are low – as has been the case for a significant part of this year – the African Cape of Good Hope route is also appealing – albeit that it is extra sailing time. This is less of a problem for tankers, as the cargo is not usually so time-sensitive, "and if you can, it definitely makes sense to save the money" says Chaudhary.

Wadey adds that several container services have taken advantage of this route for the return journey, including 2M's Far East-Europe AE6/Lion service, Ocean Alliance's CEM, THE Alliance's Transpacific AWE4 to the US East Coast, and others.

Interestingly, there is also the old Panama railway link which is still running beside the canal. "This is now experiencing notable container transhipment growth, as it is possible to unload here, move it onto the train, then put in on another ship calling at the other end While less pricey, it does, admittedly, mean slicing the route in two, losing ocean-transit slot benefits and adding double-handling charges," according to Chaudhary.

CUTTING THROUGH

Could all this prompt further interest in creating more shortcuts? It is questionable whether the Nicaragua Canal project, raised, then dropped by Chinese interests, will return to the table. It is a vast, US$50bn project, and Chaudhary comments that nobody yet has found a way to fill the finance gap.

Other waterways are still being considered, including the Kra Canal (bisecting Thailand), Kanal Istanbul (the Bosporus alternative) plus the Eurasia Canal linking the Caspian and Black Seas. All of these ideas have the potential for substantially altering a swathe of cargo patterns.

However, Wadey reiterates that across the world, even before COVID-19, boxship canal transits were "generally down", partially reflecting larger vessel sizes.

Even if environmental and geopolitical implications can be overcome, any new containership route will have to offer a convincing draft, which inevitably entails a higher upfront cost. The charging structure will need to find a balance between lower transit numbers, competitive pricing, and yet still yield a return against sizeable investment.

In short, "all of these projects will have to offer a value proposition that is much better than the current alternatives, to justify the cost of using them," says Wadey. He is, in general, sceptical about commercial viability, but adds that, "It does not mean one or more of these canals won't be built".