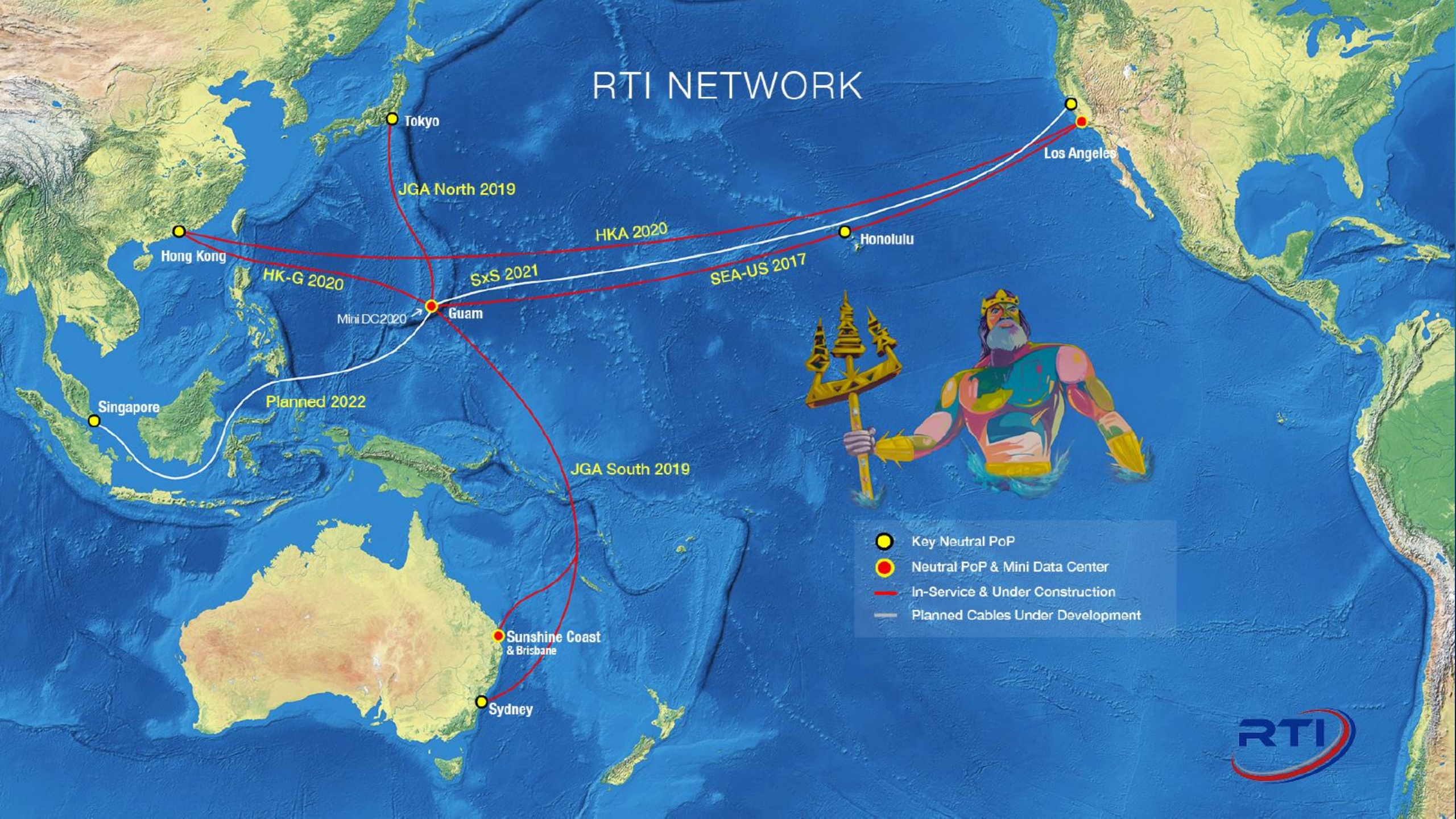


# RTI NETWORK



- Key Neutral PoP
- Neutral PoP & Mini Data Center
- In-Service & Under Construction
- Planned Cables Under Development





# UNDERSEA CABLES & WHAT THEY BRING...

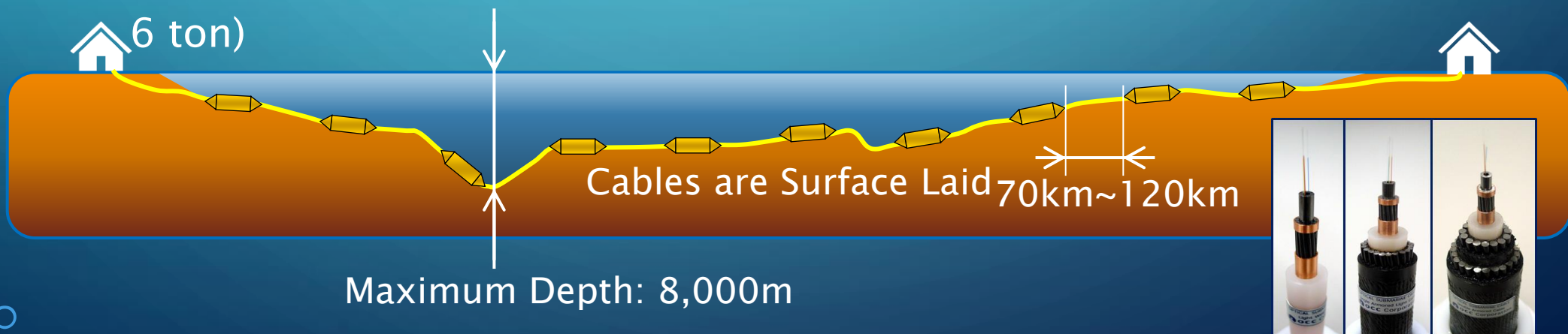
WHY ARE UNDERSEA CABLES RELEVANT?

RUSSELL A. MATULICH  
CHIEF EXECUTIVE OFFICER  
RTI GROUP COMPANIES



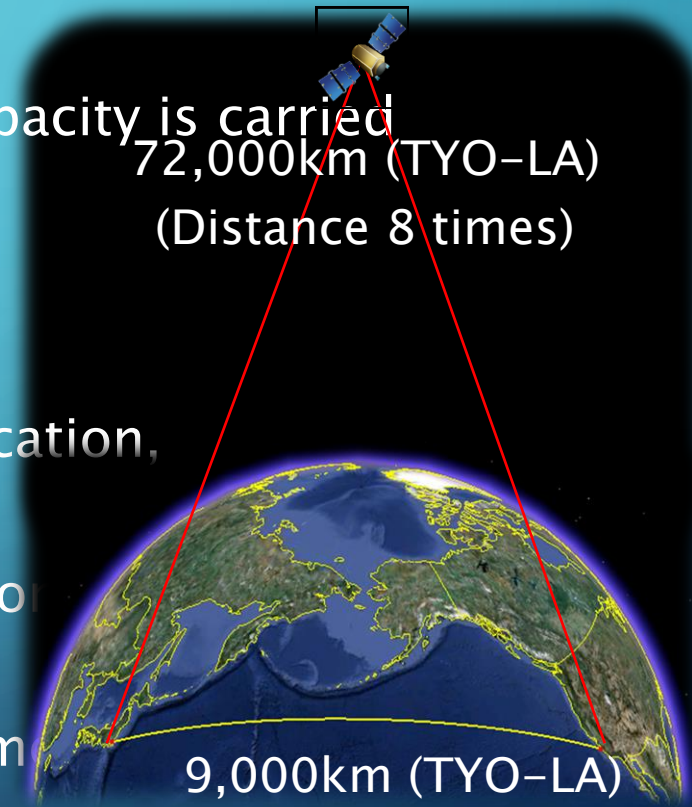
# BUT FIRST, WHAT IS AN UNDERSEA CABLE ?

- Design Capacity: Max 216Tb/s (18Tb/s x 12fp) (Equiv. 5,750 DVDs per 1 sec)
- Design Life: 25 years
- Maximum Distance: Over 12,000km
- Maximum Depth: 8,000m (Water pressure: 800 kg/cm<sup>2</sup>, Tension:



# AND, WHY NOT SATELLITE ?

- Dependency: 99.7% of Int'l Capacity is carried on Undersea Cable (\*FCC stats)
- Capacity: x10,000
- Flexibility: Various Applications  
HD TV, Internet, Mobile Communication, Intra DC Transmission, etc.
- Operation: Longer Design Life, Stable Operation  
Lower Cost & Easier Upgradability
- Low Latency: Speed is eight times faster



# UNDERSEA CABLES = TRADE

- Trade –
  - A\$15 trillion of daily financial transactions are supported by 1.1 million km of undersea cable
  - Global demand remains 40–50% annually – nearly doubling every two years
  - By 2021, the world could run out of capacity if no new cables were built
  - For every 10% increase in fixed broadband penetration, annual per capita GDP growth increases by about one percentage point (World Bank study concludes)
  - Growth drivers = 5G, machine learning, quantum computing, augmented reality, IoT, and the Pokemon Go affect, among others
    - NOTE: Pokemon Go, one of the first augmented reality games, achieved widespread use worldwide in 2016, generating a 50X jump in associated traffic demand, far exceeding Google's estimate of a five-fold leap (TeleGeography)

The background is a solid teal color with a subtle gradient. In the four corners, there are decorative white line-art elements resembling circuit traces or fiber optic paths, with small circles at the end of the lines.

# CASE STUDY

## 2015 GUAM-SAIPAN CABLE OUTAGE

# 2015 GUAM-SAIPAN CABLE OUTAGE

- A series of recent typhoons weakened the 15+ year old undersea cable – between Guam–Saipan – causing a break in shallow waters
- 8 July 2015: 2:06 AM Outage
  - Cell Sites: 100% of Saipan, Rota, and Tinian cell sites were out of service
  - Services: 100% of voice, SMS, data and 911 calls were out of service
  - Internet: 100% of Internet was out of service
- 10 July 2015
  - Divers hampered by rough seas while trying to locate the point of failure

# MELTDOWN ! NO GAME OF THRONES



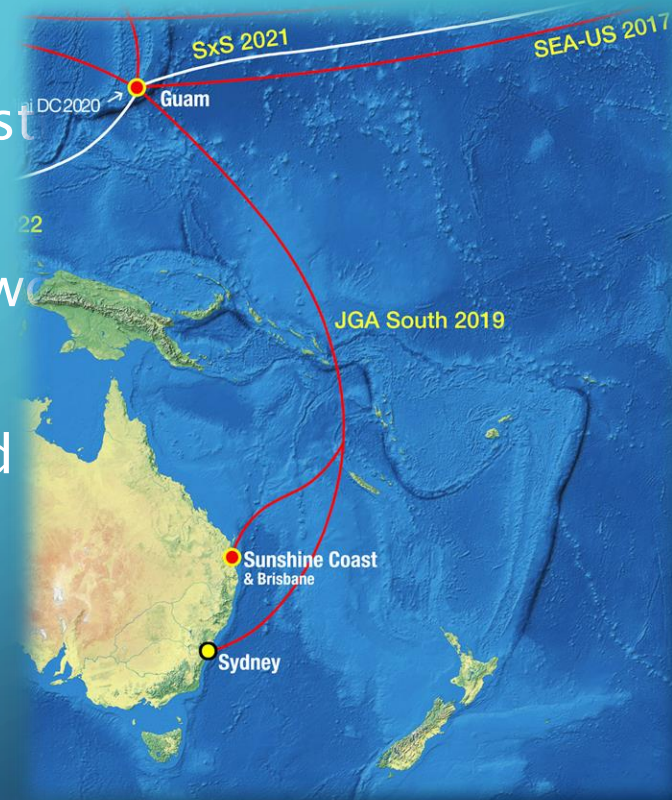


# IMPACTS OF CABLE OUTAGE – DISCONNECTION

- Financial and Economic Impacts –
  - Cash Disconnection: ATM machines did not work, so one could not take out cash
  - Financial Transactions: Checks, including paychecks, could not be cleared or cashed.
  - Commerce: No credit card purchases possible
- Communications –
  - No internet connectivity – that means no social media available like Facebook or Snapchat
  - No teleconferencing was available for scheduled healthcare visits
- Airport Impacts –
  - Immigration processing ceased
  - Flights were grounded

# AND, JGA SOUTH'S SUNSHINE COAST BRANCH

- Maroochydore is the only Cable Landing on Australia's East Coast apart from Sydney
- Provides Queensland with direct access to the world through Guam (less dependent to Sydney)
- Fastest Path between Australia's East Coast and Hong Kong / Tokyo
- Provides alternative route to Sydney



A diver is shown underwater, working on a cable. The diver is wearing a white long-sleeved shirt, dark shorts with yellow stripes, and a black BCD. They are equipped with a silver scuba tank, a mask, and fins. The diver is holding a rectangular device, likely a cable repair tool, and is focused on the task. The background is a sandy seabed with some coral or rocks. The overall scene is dimly lit, typical of an underwater environment. On the left side of the image, there is a decorative graphic of white circuit lines on a blue background.

27 JULY 2015

ACTUAL DIVER REPAIRING THE CABLE IS PICTURED ABOVE