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Ultra-Low Latency Connectivity for Financial & Capital Markets

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Global Financial & Trading Center Connectivity

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Ultra-Low Latency Route Availability

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Network Options

- **Multiprotocol label switching (MPLS) virtual private network (VPN):** Get service level agreements with 99.9%-plus availability for secure converged data, voice and, video traffic-all on a single network connection.
- **Private line services:** Support your global networking, security, and business continuity requirements with Ethernet Virtual Private Line, Ethernet Private Line, Optical Wavelength Service and International Private Line.
- **Internet bandwidth:** Connect your users and bandwidth-intensive business applications, with superior peering and interconnectivity—plus reliability with a network \ recovery time of less than 50 milliseconds.

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Round Trip Latencies

(POP-to-POP)
June 2018

		Expected	Guaranteed
China-USA	Shanghai – Chicago	155ms	158ms
	Shanghai – New York	171ms	174ms
	Hong Kong – Chicago	172ms	175ms
	Hong Kong – New York	190ms	193ms
	Hong Kong – Los Angeles	140ms	143ms
Japan-USA	Tokyo – Chicago	126ms	129ms
	Tokyo – New York	143ms	146ms
China - Euro	Shanghai – Frankfurt (TMP)	155ms	158ms
	Shanghai – Frankfurt (TSR+)	145ms	147ms
	Shanghai – London	148ms	151ms
	Hong Kong – Frankfurt (TMP)	167ms	169ms
	Hong Kong – Frankfurt (TSR+)	153ms	156ms
	Hong Kong – London	159ms	162ms
	Hong Kong – Moscow	122ms	125ms
Inner Asia	Shenzhen – Hong Kong	1.82ms	2.00ms
	Shanghai – Hong Kong	25ms	26ms
	Shanghai – Singapore	53ms	55ms
	Shanghai – Tokyo	24ms	26ms
	Hong Kong – Singapore	30ms	32ms
	Tokyo – Singapore	65ms	67ms
China Mainland	Shanghai – Dalian	35ms	37ms
	Shanghai – Zhengzhou	19ms	20ms
	Zhengzhou – Dalian	36ms	37ms

- Expected Latency figures are based on SDH loopback test (Bandwidth: E1, round trip delay)
- Expected Latency figures are only obtained from tests between the selected POP in each city

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Shanghai – Chicago

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Shanghai – New York

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Hong Kong – Chicago

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Hong Kong – New York

Hong Kong – Los Angeles

**Resilience options can be provided on individual case basis

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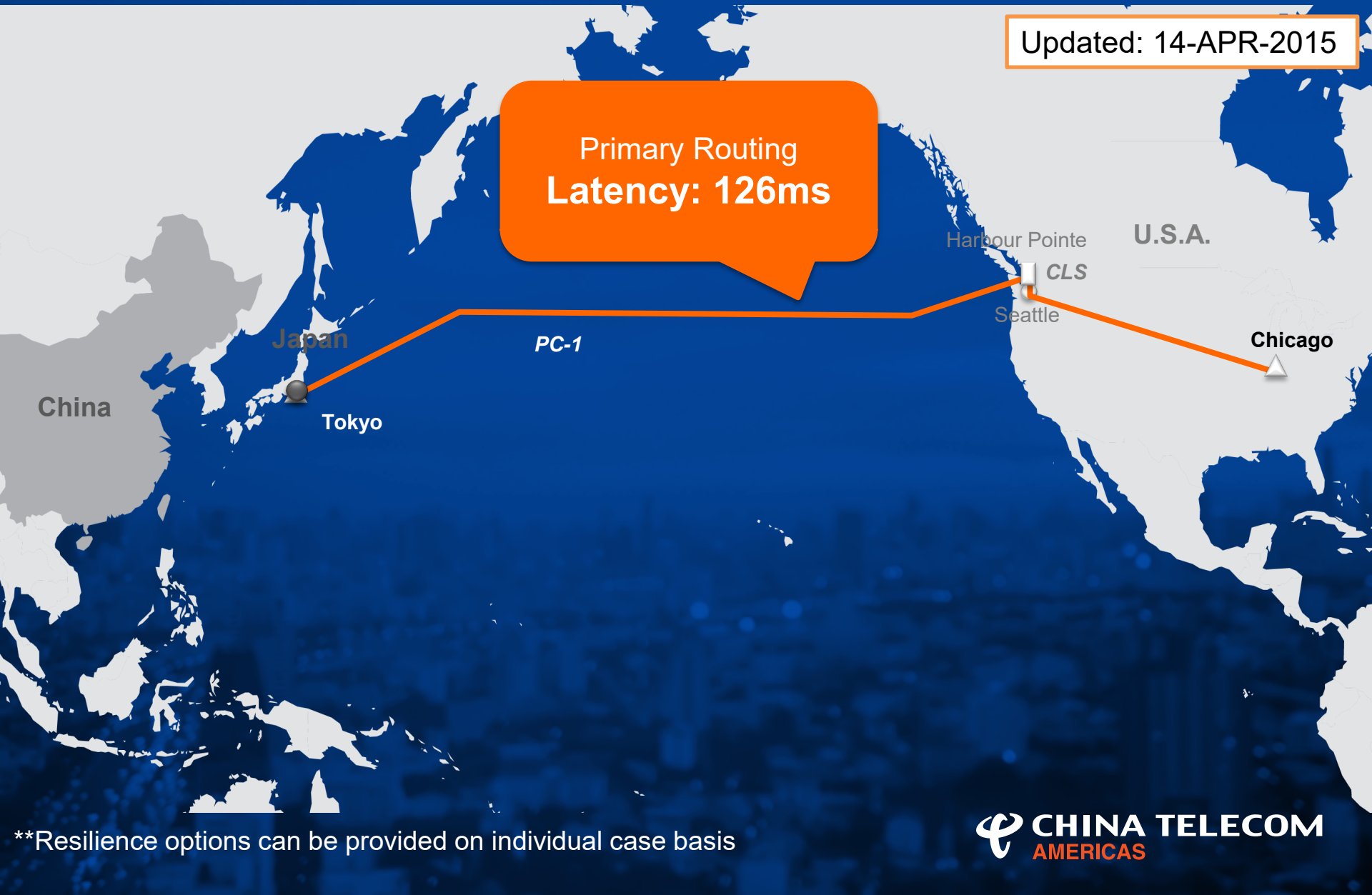
Tokyo – Chicago



**Resilience options can be provided on individual case basis

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Tokyo – New York

**Resilience options can be provided on individual case basis

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Shanghai – Frankfurt *(Transit-Mongolia)*

**Resilience options can be provided on individual case basis

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Shanghai – Frankfurt *(Transit-Kazakhstan)*

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Shanghai – London *(Transit-Mongolia)*

**Resilience options can be provided on individual case basis

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Hong Kong – Frankfurt *(Transit-Mongolia)*

**Resilience options can be provided on individual case basis

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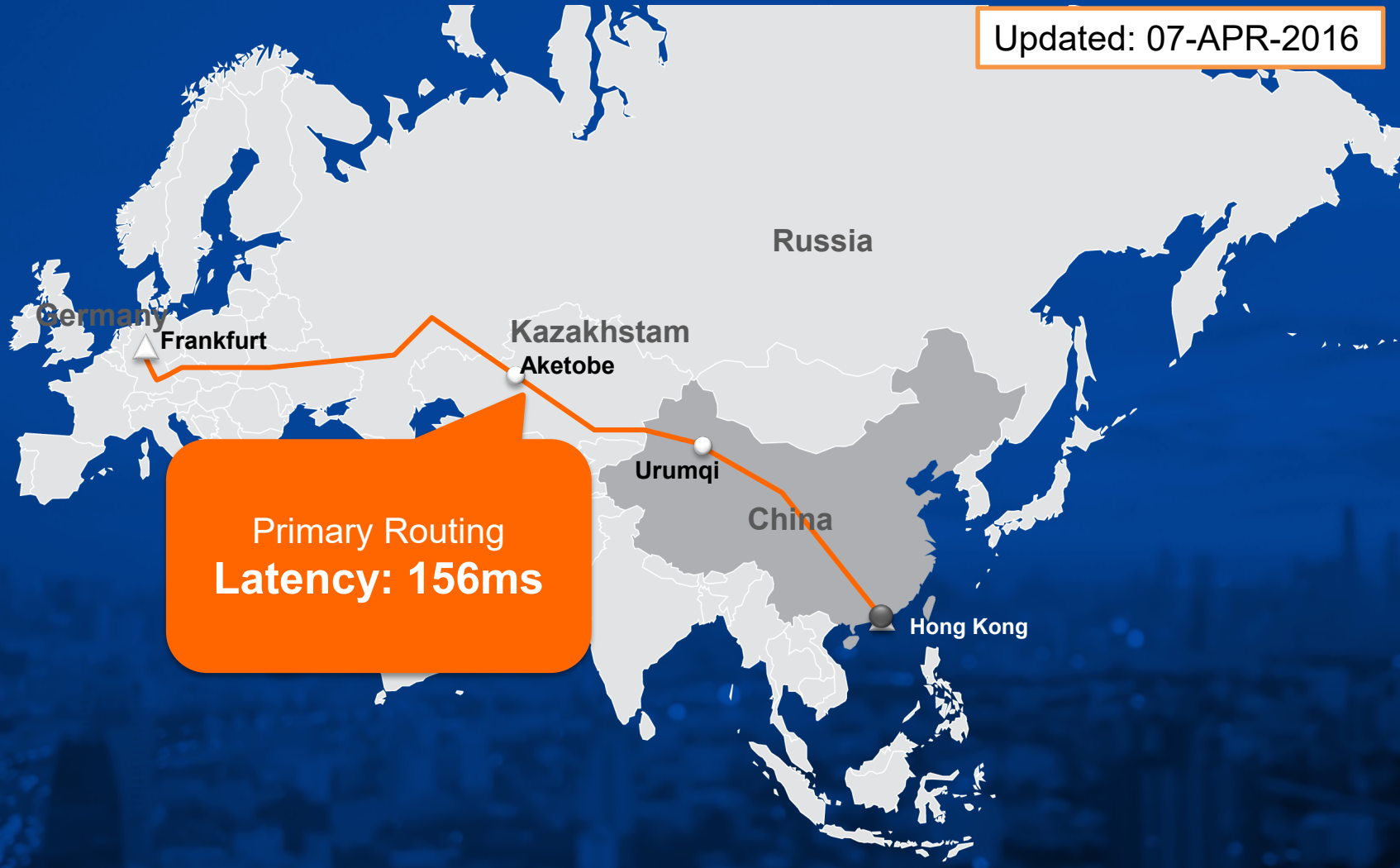
Hong Kong – Frankfurt *(Transit-Kazakhstan)*



**Resilience options can be provided on individual case basis

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Hong Kong – London *(Transit-Mongolia)*

**Resilience options can be provided on individual case basis

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Hong Kong – Moscow *(Transit-Mongolia)*

**Resilience options can be provided on individual case basis

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Shenzhen – Hong Kong *(Terrestrial Cable)*

**Resilience options can be provided on individual case basis

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Shanghai – Hong Kong

**Resilience options can be provided on individual case basis

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Shanghai – Singapore

**Resilience options can be provided on individual case basis

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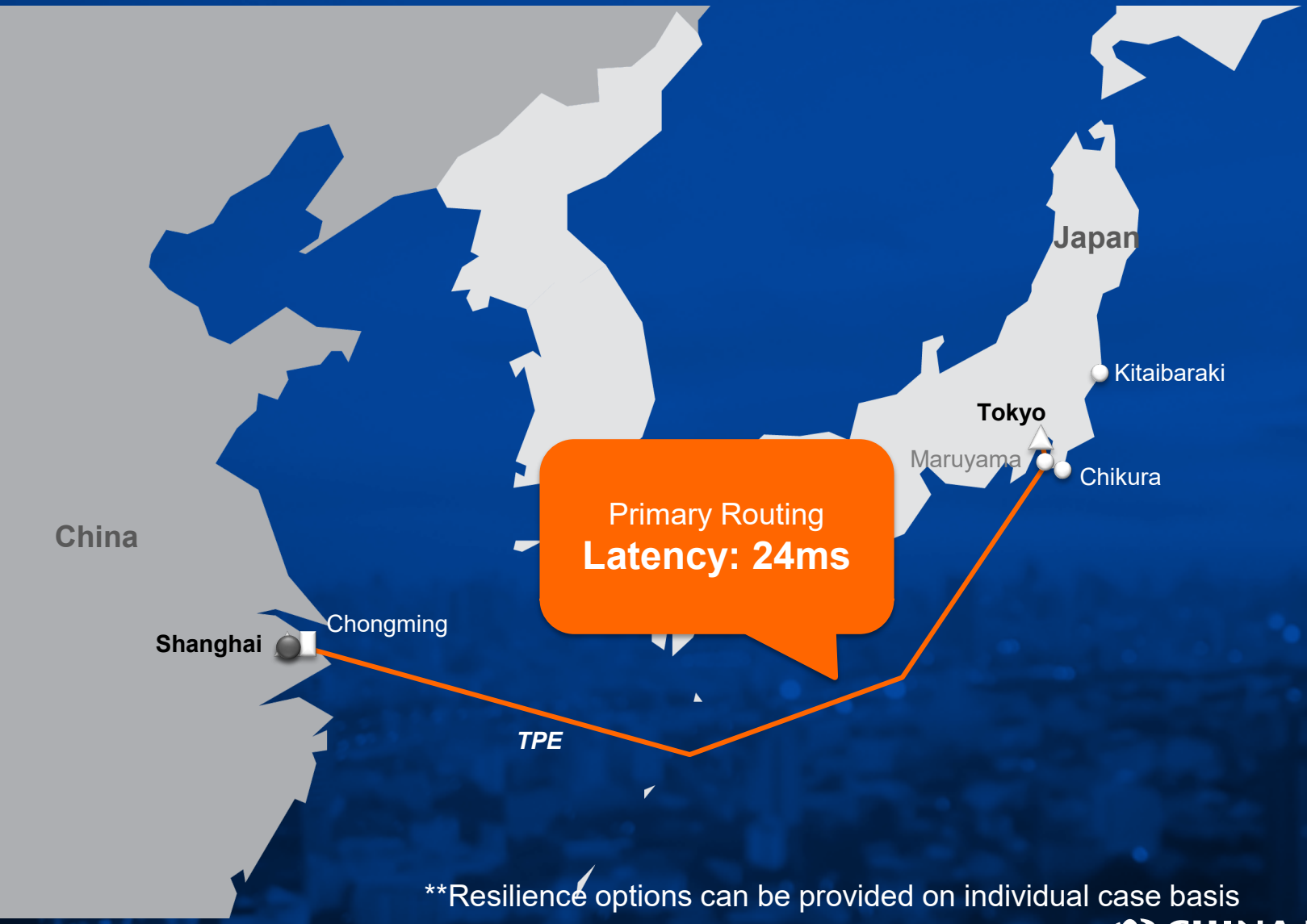
Shanghai – Tokyo



**Resilience options can be provided on individual case basis

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Hong Kong – Singapore (Equinix)

**Resilience options can be provided on individual case basis

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Tokyo - Singapore

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Shanghai – Dalian

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Shanghai – Zhengzhou

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Zhengzhou-Dalian

**Resilience options can be provided on individual case basis

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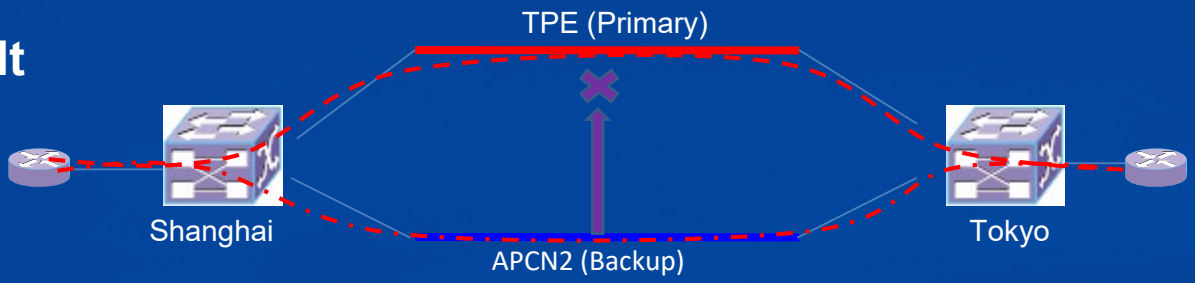
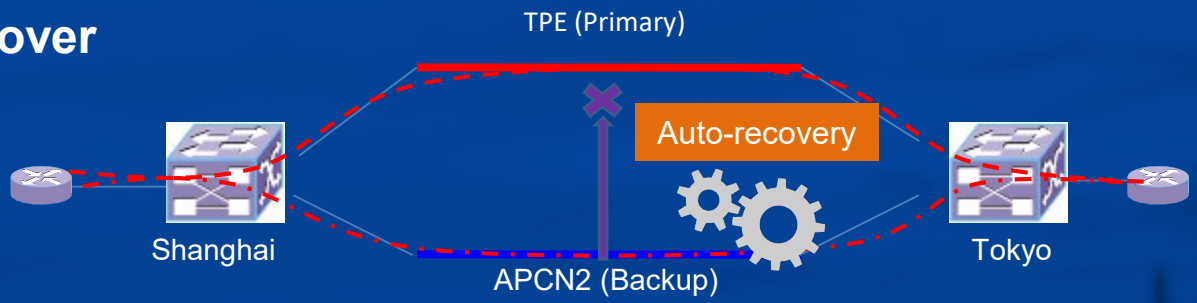
Failover Options

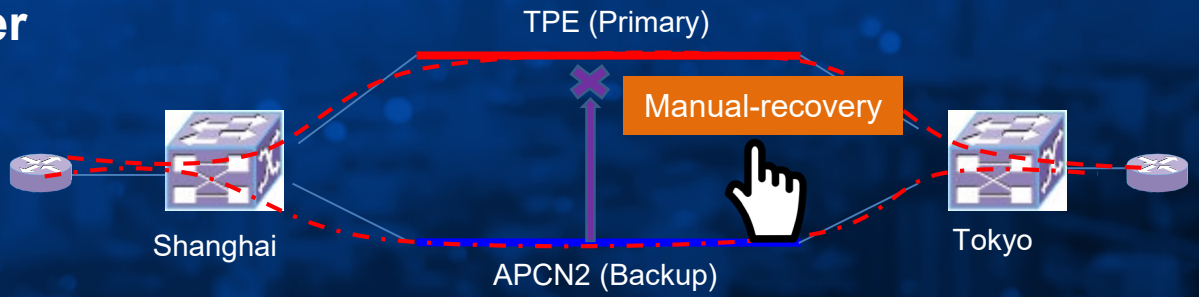
Failover due to primary fault



Automatic Restorative Failover



Manual Restorative Failover



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Active Recovery After Failover

Auto-Recovery
Domestic SDH systems
(International Usage)

Auto-Recovery
Overseas SDH systems
(ONNET)

Manual-Recovery on demand**
OFFNET resources OR
Submarine cable systems

****Manual-Recovery on demand**

For OFFNET resources or some submarine cable systems which are not controlled by CT, active recovery procedure is as following:

- 1. Trouble ticket issued by GCSC upon reception of customer's requirement
- 2. Negotiation with OFFNET vendor or submarine cable NOC to determine maintenance window after primary route fault has been fixed
- 3. Switch customer circuit from backup route to primary route during maintenance window

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Proximity Hosting

Transmission POPs Inside Key Securities Exchanges & Financial Data Centers

HKEx Data Center

CME Data Center, Aurora

SGX Data Center

Tokyo Chuo Center 1/F

60 Hudson St.

**Extra latency will be introduced due to inner city optical fiber transmission

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Industry-leading APAC Latency Figures

Route	Latency	Route Detail	Capacity
Hong Kong – New York	189ms	Via SJC+PC-1	CT
	198ms	via TPE	CT
	218ms	via AAG	Other
	205ms	via EAC+UNITY	Other
	196ms	via IA+PC-1	Other
Hong Kong – Shenzhen	2ms	HK to SZ Direct	CT
	8-10ms	via Guangzhou	Other
Shanghai – Singapore	53ms	APCN2 via Shantou	CT
	58ms	via EAC	Other
	60ms	via IA	Other
	62ms	APCN2 via Hong Kong	Other
Hong Kong – London	159ms	via Mongolia terrestrial cable	CT
	174ms	via Mongolia terrestrial cable	Other

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Key Service Features & Benefits

- **Competitive SLA pledge**
  SLA commitment on latency, MTTR, Service Delivery Date & more!
- **Industry-leading Service Availability**
  Managed connectivity into exchanges w/ autofailover redundancy
- **High Service Security**
  Dedicated circuits based on SDH/SONNET
- **Scalable Bandwidth**
  Available bandwidths up to 100Gig-E with range of access options
- **Proximity with Major Financial Exchanges**
  24 established low – latency routes directly connecting 13 priemer financial markets around the world.
- **Global One-Stop Service**
  Global 24x7 help desk, trouble ticketing portal and dedicated customer project teams.

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Get Connected and Stay Ahead

- Schedule a Meeting

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