

Routing Trends

2Q23 overview: Underlying weakness offset by continued backlog drawdown

Industry Overview

Pent-up backlog drawdown supporting growth trends

The Service Provider (SP) routing market (ex-China) grew 13.2% YoY in 2Q23, above 2Q22's 7.6% growth, and within the range of peak rates of 12%-27% seen in early 2021. On one hand, the improved growth is driven by better supply chain and the support for SP's modernization of Internet Protocol (IP) backhaul networks, as evident by the abnormal 37.5% YoY growth seen in Core routing, a market normally seeing flat to only slight growth. On the other hand, we believe the growth is short-lived and expect a sharp reversion in the next few quarters once pent-up backlog levels normalize. We saw a glimpse of this underlying SP weakness in the results of networking vendors, with Juniper's SP revenue down 20% YoY and Nokia/Ericsson reporting on ongoing weakness in North American SPs. We exclude China from our analysis as most Western vendors do not sell into the region.

Core routing up 37.5%, way above historical levels

The core routing market has historically underperformed the edge routing market, as rapid innovation and intense competition brought pricing down faster than traffic growth. Yet, in 2Q23 the core routing market grew 37.5% YoY vs. only 1.6% in 2Q22, mostly supported by improvements with Cisco, with demand for 400G-optimized routers and capacity additions by service providers and hyperscalers. Cisco continues its share recovery, with an impressive increase in market share from 59.6% in 2Q22 to 70.8% in 2Q23. Given that most of the abnormal market growth is attributed to Cisco, we question whether the company will be able to maintain this share once it depletes its excess backlog. Cisco's strength is also shifting the market share of others, with Juniper down from 24.4% to 17.6%, and Nokia down from 2.8% to 1.3%. Huawei (ex-China) is also losing share, down from 12.2% to 8.9% YoY, mostly on restrictions imposed in Europe on core routing projects with Chinese vendors. On a dollar basis, Cisco's core routing revenue grew 63.4% YoY, while Huawei remained roughly flat, and Juniper/Nokia declined -1% and -37%, respectively.

Edge growth declining on project slowdowns

Edge routing remains the bulk of the routing market, or 72.7% of the total market. Demand for edge routers is supported by both bandwidth demand and a large service element. Market growth declined to 6.1% YoY in 2Q23 vs. 9.5% in 2Q22, as COVID-related buildouts and 5G projects begin to slow down, and we expect the market to continue to decelerate to low-single digit growth once backlog levels are depleted. Cisco's market share slightly improved by 20bps YoY to 28.1% share. Huawei (ex-China) improved its position as the 3rd/4th-place player to runner-up, growing from 21.6% share in 2Q22 to 26% share in 2Q23, with strength in 5G backhaul deployment in Africa and the Middle East. Nokia and Juniper both lost market share by 430bps and 40bps YoY, respectively, on delayed purchases from customers. Smaller players that only participate in 5G aggregation, like Ericsson and Ciena, saw modest share declines of 10bps and 30bps YoY, respectively, to competitors like ZTE, which grew its share by 120bps YoY.

01 November 2023

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Timestamp: 01 November 2023 01:00AM EDT

Routing Market Overview

We present the total market data first, followed by the Core and Edge segments. Note: figures are ex-China.

Total Routing Market Trends

Exhibit 1: Snapshot of the Total Routing Market ex-China

The total routing market ex-China grew 13.2% YoY in 2Q23, supported by network capacity expansion

	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23	4Q23	CY19	CY20	CY21	CY22
	19-Mar	19-Jun	19-Sep	19-Dec	20-Mar	20-Jun	20-Sep	20-Dec	21-Mar	21-Jun	21-Sep	21-Dec	22-Mar	22-Jun	22-Sep	22-Dec	23-Mar	23-Jun	23-Sep	23-Dec				
Revenue (\$mn)	\$2,104	\$2,255	\$2,216	\$2,366	\$1,733	\$2,099	\$2,126	\$2,553	\$2,213	\$2,355	\$2,384	\$2,713	\$2,291	\$2,534	\$2,606	\$2,851	\$2,741	\$2,868			\$8,940	\$8,511	\$9,665	\$10,282
QoQ % Chg	-17.2%	7.2%	-1.7%	6.8%	-26.8%	21.1%	1.3%	20.1%	-13.3%	6.4%	1.2%	13.8%	-15.5%	10.6%	2.8%	9.4%	-3.9%	4.6%						
YoY % Chg	4.1%	4.9%	-1.9%	-6.9%	-17.6%	-6.9%	-4.1%	7.9%	27.7%	12.2%	12.1%	6.2%	3.5%	7.6%	9.3%	5.1%	19.6%	13.2%			-0.3%	-4.8%	13.6%	6.4%
Revenue Share																								
Huawei	12.8%	15.7%	16.1%	17.8%	16.7%	17.6%	10.5%	24.2%	15.3%	18.0%	17.3%	18.7%	16.2%	19.5%	14.8%	17.1%	14.3%	21.3%			15.7%	17.6%	17.4%	16.9%
Cisco	41.5%	37.9%	37.2%	34.5%	36.0%	36.3%	39.9%	28.3%	38.3%	39.2%	39.7%	36.9%	39.7%	35.0%	38.4%	35.8%	39.4%	39.8%			37.7%	34.7%	38.5%	37.1%
Nokia	23.9%	24.1%	24.1%	25.8%	24.7%	24.0%	27.2%	26.5%	25.4%	23.0%	24.4%	23.7%	23.6%	21.9%	21.9%	25.4%	23.0%	17.2%			24.5%	25.7%	24.1%	23.2%
Juniper	17.6%	18.4%	18.2%	17.8%	17.9%	19.0%	19.9%	17.5%	16.7%	16.0%	15.7%	17.8%	16.1%	17.8%	19.9%	16.3%	16.9%	16.1%			18.0%	18.5%	16.6%	17.5%
ZTE	2.3%	2.0%	2.5%	2.3%	2.0%	1.0%	0.6%	1.7%	2.4%	2.0%	1.1%	1.2%	1.0%	0.8%	0.7%	1.6%	1.6%	1.8%			2.3%	1.3%	1.6%	1.0%
Ciena	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	2.0%	1.7%	1.4%	2.2%	1.8%			0.0%	0.0%	0.0%	1.5%
Ericsson	0.6%	0.6%	0.6%	0.7%	1.3%	0.9%	0.8%	0.7%	0.8%	0.7%	0.7%	0.6%	0.8%	1.5%	1.5%	1.5%	1.2%	1.1%			0.6%	0.9%	0.7%	1.3%
Alaxala	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.1%	0.6%	0.6%	0.3%	0.0%	0.5%	0.1%			0.0%	0.0%	0.1%	0.3%
Infinera	0.4%	0.4%	0.2%	0.4%	0.5%	0.3%	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%			0.3%	0.3%	0.2%	0.0%
Other	0.9%	0.9%	0.9%	0.9%	0.8%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.8%			0.9%	0.9%	0.9%	0.9%

Source: Omdia

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Exhibit 2: Total Routing ex-China as a Percentage of the Total Global Routing Market

The China routing market saw some sequential recovery, with total routing ex-China declining from 81.3% in 1Q23 to 75.1% in 2Q23 of the total global routing market

	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23	4Q23	CY19	CY20	CY21	CY22
	19-Mar	19-Jun	19-Sep	19-Dec	20-Mar	20-Jun	20-Sep	20-Dec	21-Mar	21-Jun	21-Sep	21-Dec	22-Mar	22-Jun	22-Sep	22-Dec	23-Mar	23-Jun	23-Sep	23-Dec				
Total ex-China as % of Global	72.0%	69.0%	72.1%	69.4%	71.8%	65.4%	72.6%	71.8%	77.6%	72.4%	76.5%	73.7%	78.1%	75.5%	79.8%	80.3%	81.3%	75.1%			70.5%	70.3%	74.9%	78.4%

Source: Omdia

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Exhibit 3: Core and Edge Routing ex-China as a Percentage of the Total Routing Market ex-China

Edge routing continues to remain the largest segment of the total routing market, yet declined from a 77.6% contribution in 2Q22 to a 72.7% contribution in 2Q23

	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23	4Q23	CY19	CY20	CY21	CY22
	19-Mar	19-Jun	19-Sep	19-Dec	20-Mar	20-Jun	20-Sep	20-Dec	21-Mar	21-Jun	21-Sep	21-Dec	22-Mar	22-Jun	22-Sep	22-Dec	23-Mar	23-Jun	23-Sep	23-Dec				
Core as % of Total (ex-China)	26.1%	23.5%	22.8%	22.4%	23.8%	23.3%	23.9%	19.6%	24.2%	23.8%	23.4%	23.1%	25.6%	22.4%	22.5%	21.8%	25.0%	27.3%			23.6%	22.4%	23.6%	23.0%
Edge as % of Total (ex-China)	73.9%	76.5%	77.2%	77.6%	76.2%	76.7%	76.1%	80.4%	75.8%	76.2%	76.6%	76.9%	74.4%	77.6%	77.5%	78.2%	75.0%	72.7%			76.4%	77.6%	76.4%	77.0%

Source: Omdia

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Core Routing Market Trends

Exhibit 4: Snapshot of the Core Routing Market ex-China

Core routing was 27.3% of the total routing market ex-China, up 37.5% YoY

	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23	4Q23		CY19	CY20	CY21	CY22
	19-Mar	19-Jun	19-Sep	19-Dec	20-Mar	20-Jun	20-Sep	20-Dec	21-Mar	21-Jun	21-Sep	21-Dec	22-Mar	22-Jun	22-Sep	22-Dec	23-Mar	23-Jun	23-Sep	23-Dec					
Revenue (\$mn)	\$548	\$530	\$505	\$529	\$412	\$490	\$508	\$500	\$536	\$560	\$557	\$628	\$586	\$569	\$585	\$621	\$684	\$782				\$2,112	\$1,910	\$2,281	\$2,360
QoQ % Chg	-4.2%	-3.4%	-4.7%	4.9%	-22.2%	19.0%	3.8%	-1.7%	7.3%	4.4%	-0.5%	12.6%	-6.7%	-2.9%	2.9%	6.1%	10.2%	14.3%							
YoY % Chg	17.2%	-8.5%	-15.5%	-7.5%	-24.9%	-7.5%	0.7%	-5.6%	30.2%	14.3%	9.6%	25.6%	9.3%	1.6%	5.0%	-1.1%	16.8%	37.5%				-4.7%	-9.6%	19.4%	3.5%
Revenue Share																									
Huawei	11.5%	19.5%	16.4%	18.0%	13.4%	11.4%	14.1%	17.3%	10.3%	12.0%	12.5%	16.9%	9.6%	12.2%	10.7%	15.4%	8.7%	8.9%				16.3%	14.1%	13.1%	12.0%
Cisco	51.9%	39.6%	43.5%	44.6%	49.9%	48.5%	49.2%	43.4%	57.9%	58.2%	56.7%	55.0%	61.8%	59.6%	63.2%	58.3%	67.5%	70.8%				45.0%	47.7%	56.8%	60.7%
Nokia	7.9%	8.7%	9.0%	9.7%	8.3%	7.9%	4.1%	5.9%	3.0%	2.8%	3.1%	3.0%	2.7%	2.8%	4.0%	4.8%	3.8%	1.3%				8.8%	6.4%	3.0%	3.6%
Juniper	26.4%	30.2%	28.7%	24.9%	26.0%	31.0%	31.8%	30.9%	26.3%	25.5%	26.5%	23.7%	24.8%	24.4%	21.0%	19.4%	18.3%	17.6%				27.5%	30.1%	25.4%	22.3%
ZTE	1.8%	1.5%	1.9%	2.4%	1.8%	0.8%	0.4%	2.1%	2.1%	1.1%	0.8%	1.1%	0.6%	0.6%	0.6%	1.7%	1.3%	1.1%				1.9%	1.2%	1.2%	0.9%
Other	0.5%	0.4%	0.4%	0.5%	0.4%	0.4%	0.5%	0.5%	0.4%	0.4%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%				0.4%	0.4%	0.4%	0.4%

Source: Omdia

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Exhibit 5: Core Routing ex-China as a Percentage of the Global Core Routing Market

Investments in core routing in China improved in 2Q23, with core routing declining to 70% of the global core routing market from a 75.1% contribution last quarter

	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23	4Q23		CY19	CY20	CY21	CY22
	19-Mar	19-Jun	19-Sep	19-Dec	20-Mar	20-Jun	20-Sep	20-Dec	21-Mar	21-Jun	21-Sep	21-Dec	22-Mar	22-Jun	22-Sep	22-Dec	23-Mar	23-Jun	23-Sep	23-Dec					
Core ex-China as % of Global	66.9%	60.0%	65.9%	57.7%	63.5%	57.6%	67.6%	59.0%	71.7%	63.9%	73.0%	64.6%	72.2%	64.2%	76.1%	74.7%	75.1%	70.0%				62.4%	61.6%	67.9%	71.6%

Source: Omdia

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Edge Routing Market Trends

Exhibit 6: Snapshot of the Edge Routing Market ex-China

The edge routing market ex-China grew 6.1% YoY in 2Q23 vs. 9.5% a year ago, as SPs and cable companies are moderating their spending levels

	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23	4Q23		CY19	CY20	CY21	CY22
	19-Mar	19-Jun	19-Sep	19-Dec	20-Mar	20-Jun	20-Sep	20-Dec	21-Mar	21-Jun	21-Sep	21-Dec	22-Mar	22-Jun	22-Sep	22-Dec	23-Mar	23-Jun	23-Sep	23-Dec					
Revenue (\$mn)	\$1,556	\$1,725	\$1,711	\$1,836	\$1,321	\$1,609	\$1,618	\$2,054	\$1,677	\$1,795	\$1,827	\$2,085	\$1,706	\$1,965	\$2,021	\$2,230	\$2,056	\$2,086				\$6,828	\$6,601	\$7,384	\$7,922
QoQ % Chg	-20.9%	10.9%	-0.8%	7.3%	-28.1%	21.8%	0.5%	27.0%	-18.4%	7.1%	1.7%	14.1%	-18.2%	15.2%	2.8%	10.4%	-7.8%	1.4%				1.1%	-3.3%	11.9%	7.3%
YoY % Chg	0.2%	9.9%	3.0%	-6.7%	-15.1%	-6.7%	-5.5%	11.8%	26.9%	11.6%	12.9%	1.5%	1.7%	9.5%	10.6%	7.0%	20.6%	6.1%							
Revenue Share																									
Huawei	13.2%	14.6%	16.0%	17.7%	17.7%	19.5%	9.3%	25.8%	16.9%	19.8%	18.8%	19.2%	18.5%	21.6%	16.0%	17.5%	16.1%	26.0%				15.5%	18.6%	18.7%	18.4%
Cisco	37.8%	37.4%	35.4%	31.6%	31.7%	32.6%	36.9%	24.6%	32.1%	33.3%	34.5%	31.5%	32.1%	27.9%	31.2%	29.6%	30.0%	28.1%				35.4%	31.0%	32.8%	30.1%
Nokia	29.6%	28.8%	28.6%	30.5%	29.8%	28.9%	34.5%	31.5%	32.5%	29.3%	30.9%	29.9%	30.7%	27.5%	27.1%	31.1%	29.4%	23.2%				29.4%	31.3%	30.6%	29.1%
Juniper	14.5%	14.7%	15.1%	15.7%	15.4%	15.3%	16.1%	14.3%	13.6%	13.1%	12.4%	16.0%	13.1%	15.9%	19.6%	15.5%	16.4%	15.5%				15.0%	15.2%	13.9%	16.1%
ZTE	2.5%	2.1%	2.7%	2.2%	2.1%	1.1%	0.6%	1.6%	2.5%	2.2%	1.2%	1.2%	1.1%	0.9%	0.7%	1.6%	1.7%	2.1%				2.4%	1.4%	1.8%	1.1%
Ciena	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	2.6%	2.1%	1.7%	2.9%	2.5%				0.0%	0.0%	0.0%	2.0%
Ericsson	0.8%	0.8%	0.8%	0.8%	1.7%	1.2%	1.1%	0.9%	1.0%	0.9%	0.9%	0.8%	1.0%	1.9%	1.9%	2.0%	1.6%	1.6%				0.8%	1.2%	0.9%	1.7%
Alaxala	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.1%	0.8%	0.7%	0.3%	0.0%	0.7%	0.1%				0.0%	0.0%	0.1%	0.5%
Infinera	0.5%	0.5%	0.3%	0.5%	0.6%	0.4%	0.3%	0.2%	0.3%	0.2%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%				0.4%	0.4%	0.2%	0.0%
Other	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	0.9%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.1%	1.0%				1.0%	1.0%	1.0%	1.0%

Source: Omdia

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Exhibit 7: Edge Routing ex-China as a Percentage of the Global Edge Routing Market

While the China edge routing market is a more mature market, new implementations drove edge routing ex-China to decline to 77.2% of the global edge routing market

	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23	4Q23		CY19	CY20	CY21	CY22
	19-Mar	19-Jun	19-Sep	19-Dec	20-Mar	20-Jun	20-Sep	20-Dec	21-Mar	21-Jun	21-Sep	21-Dec	22-Mar	22-Jun	22-Sep	22-Dec	23-Mar	23-Jun	23-Sep	23-Dec					
Edge ex-China as % of Global	74.0%	72.4%	74.1%	73.6%	74.8%	68.2%	74.3%	75.9%	79.7%	75.5%	77.7%	77.0%	80.4%	79.5%	81.0%	82.0%	83.6%	77.2%				73.5%	73.3%	77.4%	80.7%

Source: Omdia

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