21Vianet Group, Inc. (VNET US)
Rising capacity drives growth

- According to F&S, VNET has a market share of ~11% in 2019 within China's carrier-neutral data center services market
- For 2021, VNET targets to add 25,000 cabinets (of which 20,300 were already secured), which will boost existing portfolio by around 49%, based on 51,476 cabinets in service as at 3Q20
- On rising capacity, we expect adjusted EBITDA to grow at 36% CAGR from RMB1,325mn to RMB2,455mn
- Initiate BUY with DCF-derived TP of USD50.45

A pioneer in China's carrier-neutral IDC market. VNET is one of the first carrier-neutral IDC providers in China with infrastructure interconnected with various networks. According to F&S, VNET has a market share of ~11% in 2019 within China's carrier-neutral data center services market. VNET's revenue from hosting and related services increased from RMB 2,669mn in 2016, to RMB 3,789mn in 2019, implying a CAGR of 12.4%. Adjusted EBITDA increased from RMB 244mn in 2016, to RMB 1,050mn in 2019, implying a CAGR 62.7%. In 3Q20, net revenue jumped 27.0%YoY or 8.9% QoQ to RMB 1,246mn, while adjusted EBITDA soared 35.2%YoY or 20.2%QoQ to RMB 368mn.

Premium data centers located in major internet hubs with abundant pipelines. As of Sep 2020, VNET operates 31 self-built data centers with ~47,650 cabinets and 54 partnered data centers with ~3,800 cabinets. Within the self-built portfolio, about 43% of the self-built cabinets are located in Beijing, 21% in Shanghai and Hangzhou, and 20% in Greater Bay Area. For 2021, VNET targets to add 25,000 cabinets (of which 20,300 were already secured), which will boost its existing portfolio by ~ 49% based on the 51,476 cabinets in service as at 3Q20.

Large, diversified, and loyal customer base. VNET serves a diversified and loyal base of customers, including enterprise, as well as individual customers that signed for the Windows Azure, Office 365, and Dynamics 365 services. Revenue from the top five customers accounted for ~22% of total net revenue in 2019. As of Dec 31, 2019, VNET had over 5,000 enterprise customers for hosting and related services. In Dec 2019, VNET signed an agreement with Alibaba (9988 HK) to initiate the second phase of construction. During the contract term, the first building is expected to generate more than RMB 600mn in revenue.

Initiate BUY with TP at US$ 50.45. In our view, a substantial proportion of VNET's revenue is determined by long-term contracts with retail and wholesale customers, which could last for years. As such, we believe DCF valuation would offer a more accurate assessment based on the Group's high cash-flow visibility and long-term value supported by revenue and adjusted EBITDA growth. The DCF-derived model TP for VNET (with a WACC of 9.5% and 1% terminal growth rate) is US$ 50.45, which translates into 32.9x EV/ adjusted EBITDA and 10.1x P/B for 2021E.

Results and Valuations

FY ended Dec 31	2018A	2019A	2020E	2021E	2022E
Revenue (RMB mn)	3,401	3,789	4,817	6,390	8,533
Chg (%,YoY)	0.2	11.4	27.1	32.7	33.5
Adjusted EBITDA (RMB mn)	918	1,050	1,325	1,729	2,455
Chg (%,YoY)	78.2	14.5	26.2	30.4	42.0
Net profit/ (loss) (RMB)	(205)	(182)	(1,775)	(453)	(648)
Chg (%,YoY)	(73.5)	(11.1)	873.6	(74.5)	43.2
EPS** (RMB)	(1.81)	(1.64)	(11.34)	(2.73)	(3.90)
Chg (%,YoY)	(73.5)	(9.7)	593.5	(76.0)	43.2
BVPS** (RMB)	45.01	44.43	37.05	32.17	28.27
Chg (%,YoY)	0.9	(1.3)	(16.6)	(13.2)	(12.1)
EV/adjusted EBITDA (x)	32.2	29.4	24.0	21.1	16.6
P/B (x)	5.0	5.1	6.1	7.0	8.0
Net gearing (%)	(7%)	18%	26%	99%	181%

* USD to RMB= 6.47
** on fully diluted ADS basis
Source(s): The Company, ABCI Securities estimates

Company Report
Mar 4, 2021
Rating: BUY
TP: US$ 50.45

Analyst : Kenneth Tung
Tel: (852) 2147 8311
kennethtung@abci.com.hk

Key Data

Share price (USD)	34.83
Est. share price return	44.8%
Est. dividend yield	0.0%
Est. total return	44.8%
Previous Rating &TP	NA
Previous Report Date	NA

Source(s): The Company, ABCI Securities estimates

Key data

52Wk H/L(USD)	44.45/9.34
Issued shares (mn)	132.9
Market cap (USD mn)	4,629
3-mth avg daily turnover (USD mn)	80.98
Major shareholder(s) (%):	
Tuspark	16.6
GIC	7.3
Sheng Chen	5.0

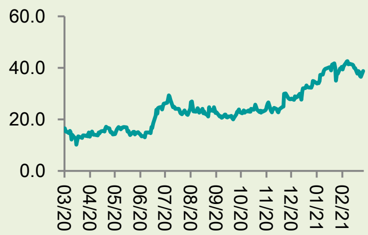
Source(s): Bloomberg , ABCI Securities

Share Performance (%)

	Absolute	Relative*
1-mth	(5.9)	(8.5)
3-mth	34.4	20.9
6-mth	59.2	34.6

* Relative to HSI
Source(s): The Company, ABCI Securities

1-Year share performance (USD)



Source(s): Bloomberg, ABCI Securities

Contents

A pioneer and leader in China's carrier-neutral IDC Market

Overview

VNET is one of the first carrier-neutral IDC providers in China with infrastructure interconnected with various networks. According to F&S, VNET had a market share of ~11% in 2019 within China's carrier-neutral data center services market. VNET hosts customers' servers and networking equipment and provides interconnectivity to improve the performance, availability and security of their internet infrastructure. VNET also provides complementary value-added services, such as cloud services, VPN services, and hybrid IT services. VNET started offering public cloud services in 2013, private cloud and hybrid services in 2014, and partnered with numerous cloud providers to support its comprehensive cloud-neutral platform.

The two key business drivers for VNET are:

- **Cloud computing services:** Cloud computing services, largely through partnerships with Microsoft and others, have contributed significantly to revenue and profit for the past three years. While cloud computing platforms are now supporting a significant number of customers, the market in China is still in its early stages. Key factors of growth in this market include signing up services from new customers, improving utilization rates of cloud computing resources with existing customers, introducing well-developed applications to improve cloud computing adoption rates, and partnering with more cloud providers to offer a comprehensive cloud-neutral platform.
- **Enterprise VPN services:** As one of the largest enterprise VPN service providers in the Asia Pacific region following the acquisition of Dermot Entities in Aug 2014, VNET expects continued growth in this market to meet customers' growing demand for enterprise-grade VPN services with secure, dedicated connections.

VNET used to provide managed network services to enable customers to deliver data across the internet in a faster and reliable manner through its data transmission network. In 2017, VNET completed the disposal of the managed network services business segment, including CDN services, hosting area network services, route optimization business and last-mile broadband business, to focus more on expanding core IDC business.

Types of services provided

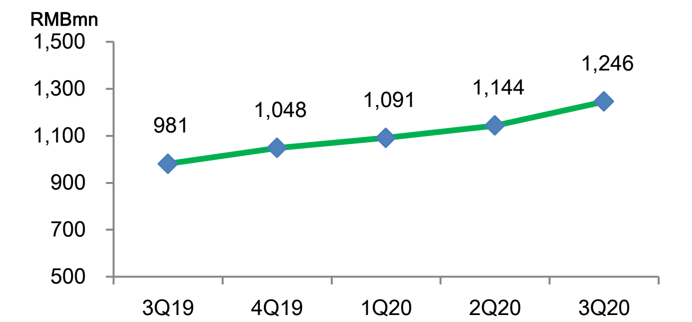
- **Hosting services:** the Group dedicates data center space to house customers' servers and networking equipment and provides tailored server administration services, including operating system support and assistance with updates, server monitoring, server backup and restoration, server security evaluation, firewall services, and disaster recovery. It also provides interconnectivity services to connect customers with each other, internet backbones in China, and other networks through Border Gateway Protocol, or BGP, network, or single-line, dual-line or multiple-line networks. Hosting services are typically provided to customers for a fixed amount over the contract service period and the related revenue are recognized on a straight-line basis over the term of the contract. For certain contracts where considerations are based on the usage of the hosting services, the related revenue are recognized based on the consumption at the predetermined rate as the services are rendered throughout the contact term.
- **VPN services:** the Group extends customers' private networks by setting up secure and dedicated connections through the public internet. VPN services are provided to customers for a fixed amount over the contract service period and revenue is recognized on a straight-line basis over the term of the contract.

- **Cloud services:** Cloud services allow businesses to run their applications over the internet using the IT infrastructure. Revenue from Cloud services consisted of incentive revenue from Microsoft upon completion of certain conditions and a fixed percentage amount based on gross sales price generated from Cloud services provided to end customers.

Solid track record and impressive 3Q20 results

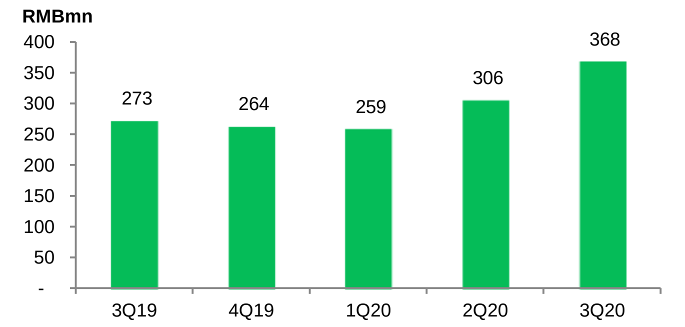
Excluding revenue from the disposed managed network services, VNET's revenue from hosting and related services increased from RMB 2,669mn in 2016 to RMB 3,789mn in 2019, implying a CAGR of 12.4%. Adjusted EBITDA increased from RMB 244mn in 2016 to RMB 1050mn in 2019, implying a CAGR 62.7%, on rising revenue and better operating leverage. Growth momentum accelerated further in recent quarters. In 3Q20, net revenue jumped 27.0%YoY or 8.9%QoQ to RMB 1,246mn while adjusted EBITDA went up 35.2%YoY or 20.2% QoQ to RMB 368mn

Exhibit 1: Net revenue (3Q19-3Q20)



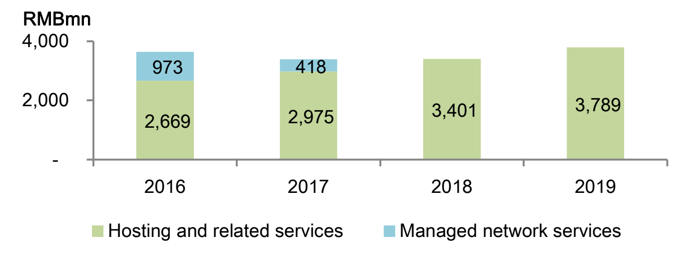
Source(s): The Company, ABCI Securities

Exhibit 2: Adjusted EBITDA (1Q19-3Q20)



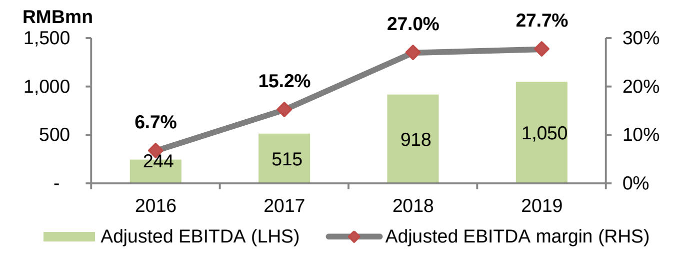
Source(s): The Company, ABCI Securities

Exhibit 3: Net revenue (2016-19)



Source(s): The Company, ABCI Securities

Exhibit 4: Adjusted EBITDA (2016-19)



Source(s): The Company, ABCI Securities

Exhibit 5: Shareholder structure (Sep 2020)

	% of shareholding	% of voting power
TusPark	16.6%	48.8%
Sheng Chen	5.0%	14.4%
Kingsoft (3888 HK)	4.1%	8.5%
GIC	7.3%	2.7%
Blackstone (BX US)	6.1%	2.3%
Fidelity International	4.7%	1.7%
Others	56.2%	21.6%
Total	**100.0%**	**100.0%**

Source(s): The Company, ABCI Securities

Premium data centers located in major internet hubs

As of Sep 2020, VNET operated 31 self-built data centers with ~47,650 cabinets and 54 partnered data centers with ~3,800 cabinets. Within the self-built portfolio, about 43% of the self-built cabinets are located in Beijing, 21% in Shanghai and Hangzhou, and 20% in Greater Bay Area. According to iResearch, the major Chinese data center markets are primary economic hubs such as the areas in and around Shanghai, Beijing, Shenzhen, Guangzhou, Hong Kong, Chengdu and Chongqing, also known as the tier 1 markets. According to iResearch, tier 1 markets, together with the outer edge of these markets, accounted for ~68% of China's data center market in terms of net floor area in 2019.

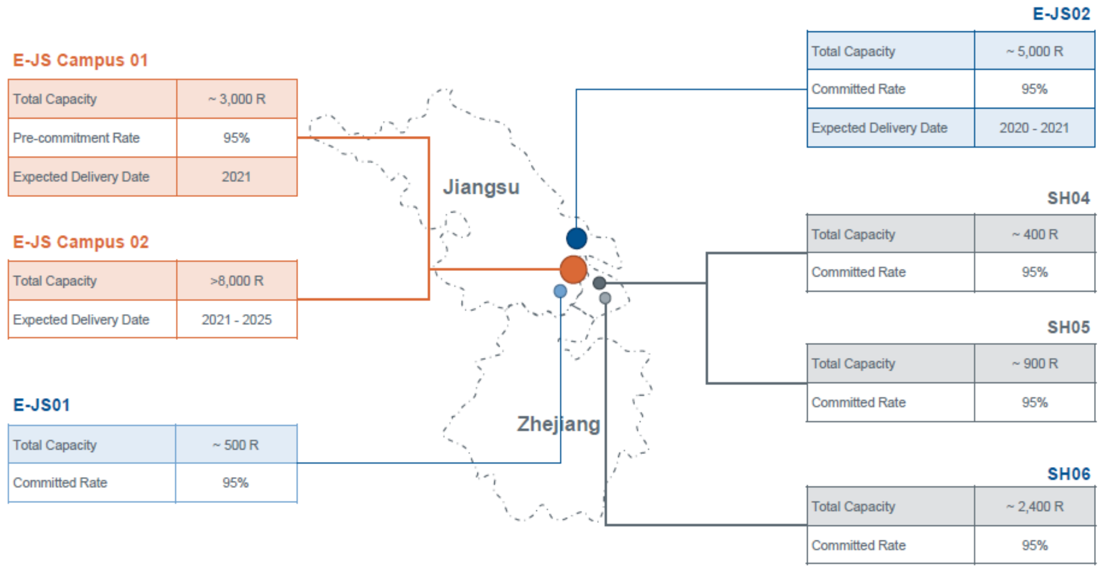
We believe the IDC center in major cities in tier 1 markets will continue to outpace the lower-tier ones given the former's proximity to customers for maintenance, better network resources, and robust economic activities. E.g., significant data center demand in Shanghai is driven by securities firms due to their proximity to the Shanghai Stock Exchange. Proximity helps reduce latency (i.e. total round trip time it takes for a data packet to travel), which is essential for time-sensitive tasks such as real-time trading. However, new data center supply in these cities is constrained by limited land and power supplies. VNET, being an early mover in top tier cities, should enjoy better utilization rate on rising demand in these regions.

Exhibit 6: Self-built data centers as at Sep 2020

	# of Self-built Cabinets	% Contribution
Beijing	~20,700	43%
Shanghai & Hangzhou	~9,800	21%
Great Bay Area	~9,300	20%
Satellite Cities	~4,350	9%
Others	~3,500	7%
Total	**~47,650**	**100%**

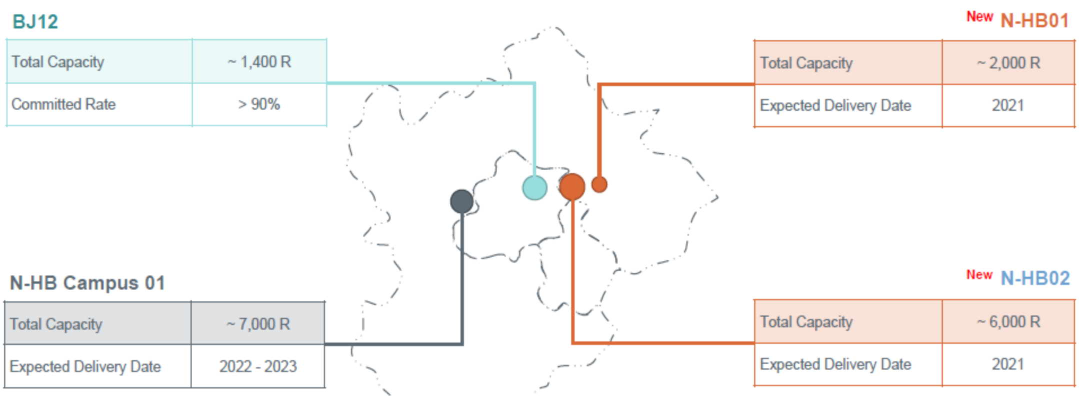
Source(s): The Company, ABCI Securities

Exhibit 7: In-service & ongoing development of wholesale projects-Yangtze River Delta region (3Q20)



Source(s): The Company, ABCI Securities

Exhibit 8: In-service & ongoing development of wholesale projects - Greater Beijing Area (3Q20)



Source(s): The Company, ABCI Securities

Abundant pipelines and potential M&A

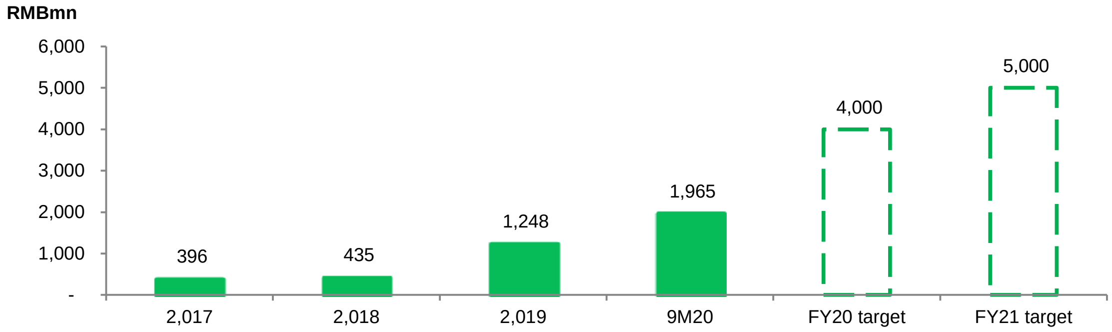
For 2021, VNET targets to add 25,000 cabinets (of which 20,300 were already secured), which will boost the existing portfolio by ~49% based on 51,476 cabinets in service as at 3Q20. About 70% of the secured pipeline for 2021 is under the leased model, while 30% comes from owned. The leased model will lower the CAPEX burden for the Group despite a thinner margin due to regular lease payment to be made. For 2020/21E, the Group estimates a CAPEX of RMB 4bn/RMB5bn (9M20 CAPEX: RMB 1.97bn).

Exhibit 9: VNET's resources pipeline- number of cabinet addition in 2020-21

IDC Pipeline Capacity	Tenure	Status	1H20	3Q20	FY2020	FY2021
BJ11	Leased	In Service		1,100	1,100	
BJ12	Leased	In Service		1,400	1,400	
BJ13	Leased	Under Construction				1,200
BJ14	Leased	Under Construction				1,100
N-HB01	Leased	Brownfield				2,000
N-HB02	Leased	Brownfield				6,000
SH05	Owned	In Service	2,400		2,400	
SH06	Leased	Fully utilized	2,400		2,400	
SH07	Owned	Under Construction			1,800	
E-JS Campus 01	Owned	Under Construction				3,000
E-JS Campus 02	Owned	Greenfield				3,000
E-JS01	Leased	In Service	1,400		1,400	
E-JS02	Leased	Under Construction	2,000	1,000	3,000	2,000
GZ03	Leased	In Service		3,500	3,500	
GZ04	Leased	Under Construction				2,000
Secured Resources					17,000	20,300
Expansion Target			*8,200*	*7,000*	*17,000*	*25,000*

Source(s): The Company, ABCI Securities

Exhibit 10: VNET's CAPEX spending



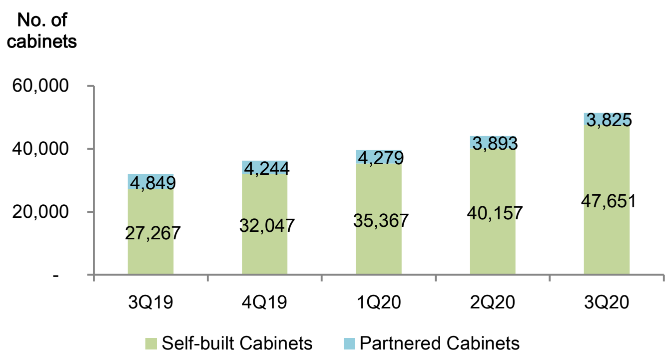
Source(s): The Company, ABCI Securities

Besides expanding through self-developed and leased approaches, VNET also engages in M&A. In 2Q20, VNET acquired the Shanghai JQ project (SH06), which provides services to one of VNET's existing wholesale customers. This data center is a mature data center and the utilization rate is ~95% with ~10 megawatts. We believe VNET would target a multiple of 6-8x adjusted EBITDA for the mature data center acquisition.

Expanding capacity and rising utilization rate

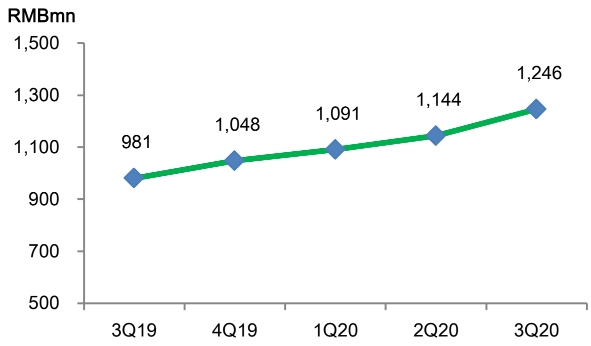
Driven by fast cabinet expansion, quarterly net revenue increased steadily from RMB 981mn in 3Q19 to RMB 1,048mn in 1Q20, RMB 1,144mn in 2Q20, and RMB 1,246mn in 3Q20. In particular, improving utilization rate is also a key driver to revenue growth. Utilization rate of matured cabinet rose steadily from 71.8% in 3Q19 to 72.3% in 1Q20, 73.6% in 2Q20, and 77.0% in 3Q20. Retail IDC monthly recurring revenue (MRR) per cabinet also increased from RMB 8,747 per cabinet in 2Q20 to RMB 9,074 per cabinet in 3Q20 despite significant new cabinet addition during the quarters. This demonstrates VNET's ability to improve efficiency and pricing power.

Exhibit 11: Number of cabinets



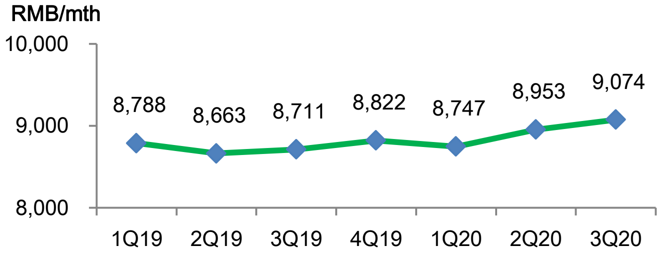
Source(s): The Company, ABCI Securities

Exhibit 129: Net revenue



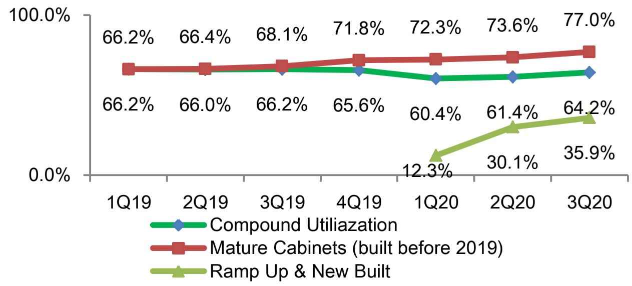
Source(s): The Company, ABCI Securities

Exhibit 13: Retail IDC MRR per cabinet



Source(s): The Company, ABCI Securities

Exhibit 14: Utilization rate



Source(s): The Company, ABCI Securities

Large, diversified, and loyal customer base

VNET serves a diversified and loyal base of customers, depending on the different types of services provided, VNET's customers include: (i) enterprise customers for hosting and related services across different industries; (ii) individual customers that signed for the Windows Azure, Office 365 and Dynamics 365 services. Given the breadth of customer base, the single largest customer accounted for less than 12% of total net revenue in any of 2017-19. Revenue from the top five customers accounted for ~22% of total net revenue in 2019. VNET has a loyal customer base, as evidenced by its low churn rate. Average monthly hosting churn rate, based on core IDC business, was 0.5%, 0.3% and 0.5% in 2017, 2018 and 2019, respectively. Average monthly recurring revenue from the top 20 customers were RMB 96.4mn, RMB 105.9mn and RMB 110.3mn in 2017, 2018, and 2019.

Number of important agreements was signed since 2019:

- **Alibaba (9988 HK):** In Dec 2019, VNET signed an agreement with Alibaba to initiate the second phase of construction as part of the previously announced memorandum of understanding (the "MoU"). The construction is planned to be completed in different stages. During the contract term, the first building is expected to generate revenue of over RMB 600mn.

- **China Everbright Bank (6818 HK):** In Jan 2020, VNET won a bid to provide and operate a mission-critical production center via its multiple-active DC architecture for China Everbright Bank throughout and has entered into a long-term cooperation agreement with China Everbright Bank. Located in Beijing, the initial phase of the project, having 3,000sqm of raised floor space.

As of 3Q20, VNET has ~1,300+ enterprise customers for retail IDCs, of which 70% were internet customers and 30% were financial institutions and Government Owned Enterprises (GOEs). Over 90% of VNET's net revenue has been recurring revenue since IPO. VNET also maintains a low concentration of risk with the top 20 customers contributing 34.9% of total revenue in 3Q20. Since 2020, VNET begins to generate revenue from wholesale customers, with ~140MW in service and/or under MOU.

Exhibit 15: VNET's customers

Source(s): The Company, ABCI Securities

Strong research and development (R&D) team with proprietary intellectual property

VNET's strong R&D capabilities support and enhance its service offerings. Over 65% of the workforce on R&D team is engineers. Many of VNET's engineers have more than 10 years of relevant industry experience. In 2017, 2018 and 2019, VNET's R&D expenses were RMB 149.1 mn, RMB 92.1mn, and RMB 88.8mn, respectively. Consistent with its strong culture of innovation, VNET devotes significant resources to the R&D of smart routing technology, cloud computing infrastructure service technologies. VNET's R&D efforts have yielded 70 patents, 45 patent applications, and 72 software copyright registrations, all in China and related to different aspects of internet infrastructure services.

Exhibit 16: the number of employees by function (Dec 2019)

Functional Area	Number of Employees	% of Total
Operations	1,072	47%
Sales, marketing and customer support	350	15%
Research and development	193	8%
General and administrative	680	30%
Total	**2,295**	**100%**

Source(s): The Company, ABCI Securities

VNET uses proprietary smart routing technology to optimize network connectivity and overcome the inherent inadequacies in China's telecommunication and internet infrastructure. VNET's smart routing technology continually monitors and analyzes the performance of all available routes and identifies the most appropriate pathway in real time. In planning for and finding the optimized routing plan, VNET's smart routing technology takes into consideration speed (latency), performance, route stability and pocket losses and dynamically responds with intelligent route adjustments in order to ensure that data is traveling along the fastest and most reliable route.

Solid fundraising record

Since 2020, VNET made significant breakthrough to raise US$ 725mn in convertible notes, US$ 150mn in preference shares, and US$ 390.5mn in equity, reflecting investors' growing confidence in the Group. In particular, we observed the more favorable terms of the recent convertible notes issuance as compared to previous issuance a year ago. Reducing financing cost will ease VNET's cash flow pressure.

<u>Convertible Note</u>

- On Feb 19, 2020, VNET issued US$ 100mn five-year convertible notes with 2% coupon and convertible price at US$12.00 per ADS. VNET will redeem on the maturity date at 115% of the then outstanding principal amount, while the notes are putable at 109% in the third year.
- On Feb 24, 2020, VNET issues another US$100mn of convertible notes with similar terms.
- On Jan 22, 2021, VNET issued US$ 525mn convertible notes due 2026 with US$ 54.47 per ADS. The convertible notes bear no interest and are redeemable at 100% of principal at maturity.

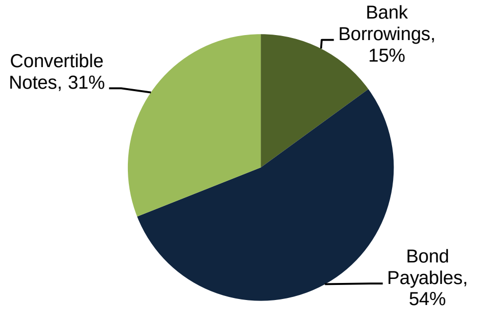
<u>Preference shares</u>

- On June 22, 2020, Blackstone (BX US), one of the world's leading investment firms, invested US$150mn in the newly issued series A perpetual preferred shares of the Company. The preferred shares are convertible into ADSs at a conversion price of US$ 17.00 per ADS, representing 11% premium to volume-weighted average price of ADSs for the 30 trading days immediately preceding the signing date. These shares bear a dividend rate of 4.5% per annum. As a result of this investment, Blackstone will become one of the Group's largest institutional stockholders.

<u>New shares issuance:</u>

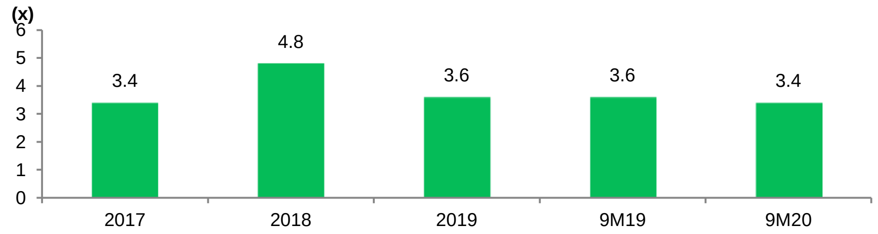
- On Aug 26, 2020, VNET issued 19.55mn ADS in a follow-on offering at US$ 20.75 and raised US$ 390.5mn.

Exhibit 17: Debt structure (3Q20: RMB3,781mn, excluding convertible notes)



Source(s): The Company, ABCI Securities

Exhibit 18: Adjusted EBITDA interest coverage



Source(s): The Company, ABCI Securities

Earnings forecasts

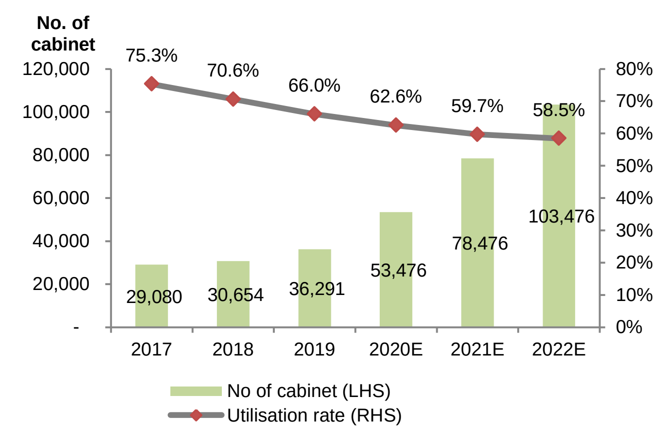
Adjusted EBTIDA to expand at 36% CAGR over 2020E-22E

We expect revenue to grow at 33% CAGR in 2020E-22E as the number of cabinets increase at 39% CAGR during the period. Utilization would decrease from 62.6% in 2020E to 58.5% in 2022E, as new data centers need a two years to ramp up utilization. However, we expect adjusted EBITDA margin to remain stable at 27.1%-28.8% during 2020-22E, since the following factors would offset the impacts of declining utilization:

1. **Increasing wholesales:** We estimate adjusted EBITDA margin of wholesales cabinets to reach ~60% as compared to ~40% for retail cabinets due to better efficiency and operating leverage.
2. **Declining VPN revenue:** VPN revenue, which entails a lower margin, will decline as a percentage of total revenue given the weak demand of overseas enterprises setting up branches in China.
3. Reducing third-party partnered cabinets, which only has a ~10% adjusted EBITDA margin based on our estimates. Partnered cabinets represent 7.4% of total cabinets in 3Q20 as compared to 15.1% in 3Q19.

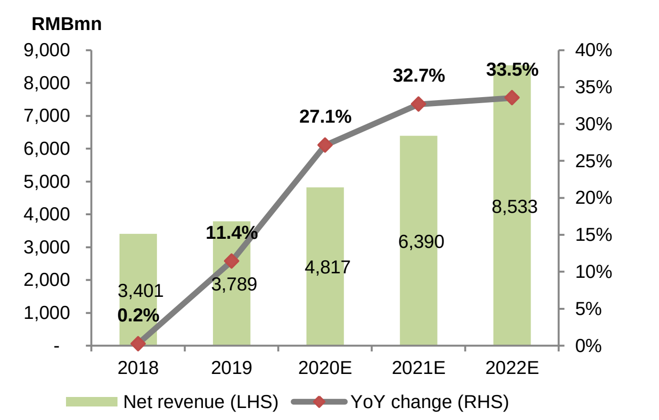
Based on the growing revenue and stable adjusted EBITDA margin, we forecast adjusted EBITDA to increase from RMB 1,325mn in 2020E to RMB 2,455mn in 2022E, representing a 36% CAGR in 2020E-22E.

Exhibit 19: No. of cabinets and utilization rate



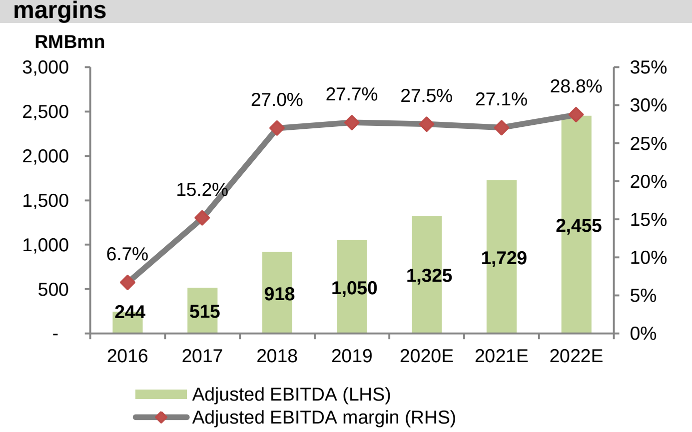
Source(s): The Company, ABCI Securities estimates

Exhibit 20: Net revenue



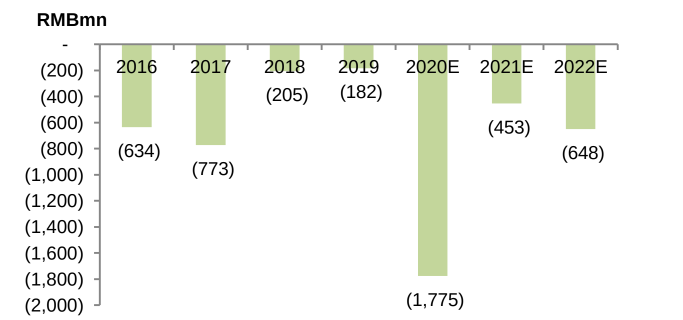
Source(s): The Company, ABCI Securities estimates

Exhibit 21: Adjusted EBTIDA and Adjusted EBITDA margins



Source(s): The Company, ABCI Securities estimates

Exhibit 22:Net profit/(loss)

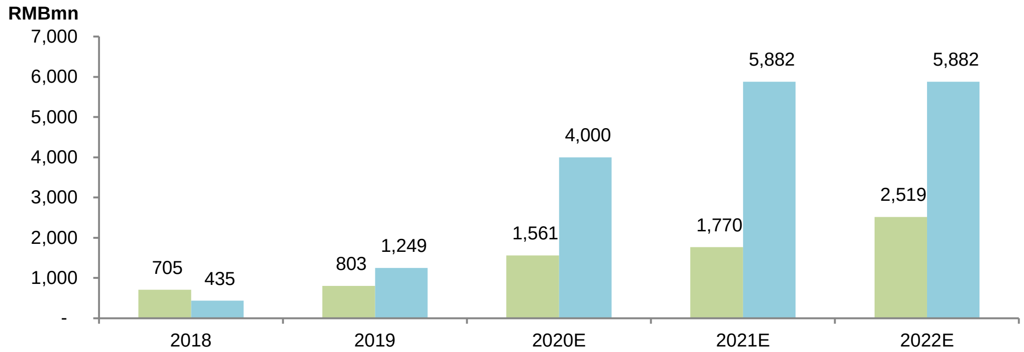


Source(s): The Company, ABCI Securities estimates

Rising CAPEX results in higher net gearing

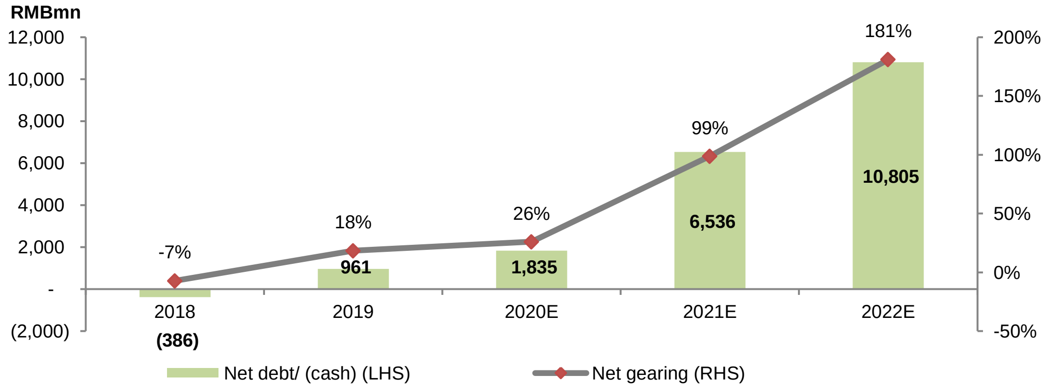
Due to aggressive cabinet expansion plan, we expect free cash flow to be negative in 2020-22E. VNET's net gearing will increase. We forecast operating cash flow to grow at 27% CAGR from RMB 1,561mn in 2020E to RMB 2,519mn in 2022E on improving utilization and capacity. Our assumption in our DCF model is based on announced expansion plan in 2020-23. For new capacity addition beyond 2023, we assume a similar capex level of ~RMB5.9bn, while adjusted EBITDA grow steadily to reach a free cash flow positive status in 2025.

Exhibit 23: VNET's operating cash flow and CAPEX



Source(s): The Company, ABCI Securities estimates

Exhibit 24: Net debt balance (end of period)



* Net debt=Gross debt- cash
Source(s): The Company, ABCI Securities estimates

Initiate BUY with DCF-derived TP of USD 50.45

DCF valuation based on a 9.5% WACC

In our view, a substantial proportion of VNET's revenue is determined by long-term contracts with retail and wholesale customers, which could last for multiple years. As such, we believe DCF valuation would offer a more accurate assessment of the Group's value based on its high cash flow visibility and long-term value supported by fast revenue and EBITDA growth.

The DCF-derived model TP for VNET (with a WACC of 9.5% and 1% terminal growth) is USD 50.45, which translates into 32.9x EV/adjusted EBITDA and 10.1x P/B for 2021E.

Exhibit 25:Senistivity of the Group's DCF-derived TP to changes in WACC

		WACC				
Terminal growth		**7.5%**	**8.5%**	**9.5%**	**10.5%**	**11.5%**
0.0%		61.88	50.25	45.47	37.49	31.13
1.0%	**TP (USD)**	70.13	56.09	50.45	41.17	33.90
2.0%		81.13	63.61	56.76	45.71	37.26
Variance from base case		**WACC**				
Terminal growth		**7.5%**	**8.5%**	**9.5%**	**10.5%**	**11.5%**
0.0%		23%	0%	-10%	-26%	-38%
1.0%	**chg (%)**	39%	11%	0%	-18%	-33%
2.0%		61%	26%	13%	-9%	-26%

Source(s): ABCI Securities estimates

Our valuation model currently assumes 25k cabinet addition per year up to 2031. However, such fast growing expansion plan is highly dependent on VNET's fund raising activities. If we assume 25k cabinet per year expansion up to 2023 as a more conservative scenario, our TP will become USD43.85, which translate into 28.8x EV/ adjusted EBITDA and 8.8x PB for 2021E.

The comparative approach

Due to the high depreciation charges and time required for new-built data centers to ramp up, most China IDC players are loss-making. We believe adjusted EBITDA would offer a better gauge to the Group's valuation instead of cash earnings, while comparisons among players would be based on EV/adjusted EBITDA. We consider the US-listed China IDC players, GDS Holdings (GDS US) and Chindata Group (CD US), to be VNET's closest peers. VNET is now trading at 16.6x 2021 EV/adjusted EBITDA compared to the peer trading average at 36-37x 2021E EV/ adjusted EBITDA based on Bloomberg's consensus forecast.

Exhibit 26: Valuation of listed IDC

		Ticker	Mkt Cap	Share Price	Performance			Valuation								
					3M	YTD	2020	EV/EBITDA			Yield (%)			P/B		
			USD bn	(LCY)	% Chg	% Chg	% Chg	2019A	2020E*	2021E*	2019A	2020E*	2021E*	2019A	2020E*	2021E*
	HK/China IDC (US or HK listed)															
1	GDS	GDS US	18.2	97.31	7	4	82	79.4	52.7	36.9	0.0	0.0	0.0	8.1	6.6	6.8
2	GDS	9698 HK	18.4	101.40	10	6	na	80.2	53.3	37.2	0.0	0.0	0.0	8.1	6.7	6.9
3	VNET	VNET US	4.6	34.83	24	0	378	24.0	21.1	16.6	0.0	0.0	0.0	5.1	6.1	7.0
4	China Data	CD US	7.3	20.29	12	(15)	na	155.0	69.7	37.1	0.0	0.0	0.0	14.6	5.4	5.2
5	SUNeVision	1686 HK	2.3	7.73	7	7	37	22.1	20.4	17.7	2.3	2.4	2.6	4.4	6.9	6.6
	China IDC (A-share listed)															
1	Beijing Sinnet	300383 CH	4.5	19.13	(3)	9	(14)	20.7	18.4	15.4	0.1	0.3	0.4	8.9	2.9	2.6
2	Shanghai Athub	603881 CH	1.9	53.06	(26)	(14)	59	41.1	28.1	18.8	0.1	0.1	0.2	3.8	5.1	4.4
3	Shanghai Baosight	600845 CH	8.4	58.20	(10)	(20)	111	44.9	31.3	24.8	0.7	0.7	0.9	16.9	8.0	7.0
4	Guangdong Aofei	300738 CH	1.4	40.45	(0)	18	71	32.8	22.2	15.9	0.2	na	na	2.7	6.4	5.2
5	Kehua Data Co	002335 CH	1.4	19.63	(16)	(14)	140	22.0	17.8	14.2	1.8	5.4	7.4	2.7	2.7	2.7
	Global IDC															
1	Equinix	EQIX US	54.6	611.34	(14)	(14)	24	24.8	21.0	19.0	1.7	1.9	2.0	5.1	5.2	5.1
2	Digital Realty	DLR US	36.3	125.66	(7)	(10)	20	30.0	21.8	20.1	3.6	3.7	3.9	2.2	2.1	2.2
3	Public Storage	PSA US	40.4	230.85	3	(0)	13	21.7	22.4	21.4	3.5	3.5	3.6	8.5	5.0	5.1
4	SBA Communication	SBAC US	26.1	239.16	(17)	(15)	18	24.3	23.4	22.0	0.8	1.0	1.2	na	na	na
	IDC Avg				**(3)**	**(5)**	**78**	**42.2**	**28.7**	**21.6**	**1.1**	**1.6**	**1.8**	**6.9**	**5.2**	**4.9**
	- HK/ China IDCs#				**13**	**(1)**	**208**	**71.5**	**41.6**	**27.3**	**0.6**	**0.6**	**0.7**	**7.9**	**6.3**	**6.2**
	- A-share listed IDC				**(11)**	**(4)**	**73**	**32.3**	**23.6**	**17.8**	**0.6**	**1.6**	**2.2**	**7.0**	**5.0**	**4.4**
	- Global IDCs				**(9)**	**(10)**	**19**	**25.2**	**22.2**	**20.6**	**2.4**	**2.5**	**2.7**	**5.2**	**4.1**	**4.1**

*Bloomberg's consensus forecast
We only include 9698 HK but exclude GDS US in calculating HK/China IDC average to avoid double counting
Source(s): Bloomberg, ABCI Securities

Exhibit 27: 3Q20 peer comparison by financial metric

	VNET (VNET US)			GDS (GDS US)			Chindata Group (CD US)		
	3Q19	3Q20	YoY chg	3Q19	3Q20	YoY chg	3Q19	3Q20	YoY chg
Financials comparison									
Revenue (RMBmn)	**981**	**1,246**	**27%**	**1,066**	**1,525**	**43%**	**284**	**467**	**65%**
Gross profit (RMBmn)	**223**	**275**	**24%**	**274**	**409**	**49%**	**82**	**190**	**132%**
Gross Margin (%)	22.7%	22.1%	-0.6%	25.7%	26.8%	1.1%	28.9%	40.7%	11.8%
Adjusted EBITDA (RMBmn)	**273**	**368**	**35%**	**484**	**717**	**48%**	**94**	**228**	**143%**
Adjusted EBTIDA Margin (%)	27.8%	29.6%	1.8%	45.4%	47.0%	1.7%	33.0%	48.8%	15.8%
Net profit (RMBmn)	**(69)**	**97**	**-240%**	**(122)**	**(224)**	**83%**	**(46)**	**(174)**	**274%**
Core net margin (%)	-7.1%	7.8%	14.9%	-11.4%	-14.7%	-3.2%	-16.3%	-37.2%	-20.8%
	Dec19	**Sep20**	**Variance**	**Dec19**	**Sep20**	**Variance**	**Dec19**	**Sep20**	**Variance**
Gross debt (RMBmn)	3,318	5,132	55%	11,216	13,940	24%	2,756	4,059	47%
Cash (RMBmn)	2,357	5,454	131%	5,811	6,005	3%	1,120	3,498	212%
Net debt/(cash) (RMBmn)	**961**	**(323)**	**-134%**	**5,405**	**7,936**	**47%**	**1,636**	**561**	**-66%**
Total Equity (RMBmn)	5,232	7,700	47%	10,294	13,637	32%	3,237	4,989	54%
Net gearing (%)	**18.4%**	**-4.2%**	**-22.6%**	**52.5%**	**58.2%**	**5.7%**	**50.5%**	**11.2%**	**-39.3%**

Source(s): VNET, GDS, Chinadata, ABCI Securities

Risk factors

- **Insufficient cabinets to cope with rising demand.** With the rapid growth of China's internet industry, demand for cabinet spaces has increased significantly and VNET may not always have sufficient self-built capacity to meet such demand. It usually takes 12-18 months to build a data center together with cabinets and equipment installed. To meet customers' immediate demand, VNET may partner with China Telecom (728 HK), China Unicom (762 HK) or other parties and leases cabinets from them. Rising leasing expenses could erode VNET's margin.

- **Policy risks.** Government policies and restrictions on the construction of new data centers or the expansion of existing data centers may also have a material impact on VNET's business. E.g., since Jan 2019, Ministry of Industry and Information Technology, or MIIT, and other regulatory authorities encourage data centers to adhere to certain average levels of energy conservation and aim to reach several goals including, among others, maintaining the power usage effectiveness (PUE) of newly constructed large and extra-large data centers at or below 1.4 from 2022 onwards. Some local governmental authorities have also issued regulations and relevant implementation rules in order to control the construction and expansion of data centers. On Sep 6, 2018, the General Office of the People's Government of Beijing Municipality issued a notice prohibiting new construction or expansion of data centers involved in providing internet data services or information processing and storage support services within certain areas of Beijing. Governmental authorities in Shanghai also announced similar guidance on Jan 2, 2019, which provides that the PUE of newly constructed Internet data center is required to be strictly controlled below 1.3, and the PUE of reconstructed internet data centers to be strictly controlled below 1.4. These regulatory developments and uncertainties regarding their implementation may adversely affect the expansion and/or construction progress of VNET's data centers.

- **Rising power costs could erode margin.** IDC centers require significant power to cool customers' servers and network equipment, and operate essential plants and equipment within the building. Rising power costs could erode margin.

- **Rising interest rates.** Finance cost increased 47%YoY to RMB 346mn in 2019 and 17%YoY to RMB301mn in 9M20. Finance cost represents 32.3% of adjusted EBITDA in 9M20, compared to 32.9% in 2019. Rising interest rate could result further margin erosion.

- **Loss-making status remains.** VNET has been loss-making for past few years due to high depreciation charged. In our model, we expect VNET to remain in red up to 2022. This will imply VNET may not distribute dividend in the near term. Also, the losses will result in reduction in equity and boost net gearing further.

- **Unable to renew leases upon expiry.** Most of VNET's self-developed data centers are located in properties under long-term leases. However, upon the expiration of such leases, VNET may not be able to renew these leases on commercially reasonable terms, if at all. This may lead to significant relocation costs for VNET. As of Dec 2019, the operating lease's weighted average remaining lease term was 9.4 years. The finance lease's weighted average remaining lease term was 15.3 years.

Data center industry overview

Typical data center services

- **Colocation services**: Colocation generally refers to a data center configuration where shared or private space in a secure environment with power and cooling is available for use by customers. Such space, power and cooling are used to house and support customers' servers and related IT equipment.
- **Managed services**: Managed services generally encompass a wider array of value-added services related to use of colocation facilities, such as business continuity and disaster recovery solutions, management of IT operations, direct private connection to cloud services, and platforms for managing hybrid clouds.

Key customers

- **Cloud service providers**: Leading cloud service providers require large data center capacity and the ability to expand flexibly. They operate their IT infrastructure at much higher levels of utilization than most enterprises, which requires data centers with a higher ratio of power to net floor area.
- **Internet companies:** Certain large internet companies are among the leading cloud service providers in China. They use their cloud platforms for their own internal IT, as well as to provide services to their external customers.
- **Financial institutions:** Financial institutions, including banks, insurance companies, and securities firms, are required by the government to house their IT systems in high availability data centers, whether self-built or outsourced, in order to ensure the uptime and security of their applications and data.
- **Large enterprise and public services:** Businesses and government agencies in China are becoming more digitalized. The e-government initiatives by Chinese government increase public sector demand for data center space.

Wholesales vs Retail

- **Wholesales:** Under the wholesale model, data center service providers typically commit a significant portion or the entirety of a data center to such customers and obtain such commitments while new data centers are still under construction. The contract term can last as long as five to ten years with low churn rate. Prices should be normally lower than retail because electricity and bandwidth costs are usually billed separately to customers.
- **Retail:** On the other hand, financial institutions, large enterprise and public services customers, which typically require fewer number of cabinets and no customization, can be satisfied under the retail model which entails multiple customers colocating in the same facility. The contract term for retail customers is typically shorter with higher unit pricing based on cabinets. The prices are normally higher wholesales due to value-added services. Electricity and bandwidth pricing are standardized and packaged with rack space.

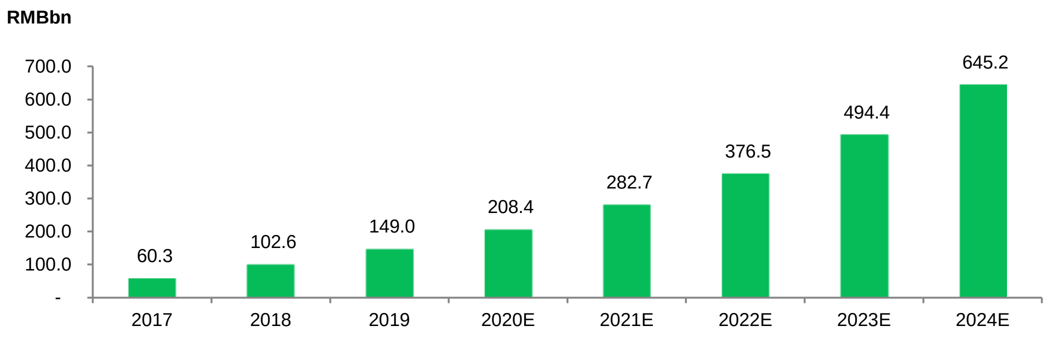
Key growth drivers

- **Digitalization in China:** Demand from the expanding internet user base, which is expected to grow from 881mn in 2019 to 1.1bn in 2024, according to iResearch, has been driving the digitalization of consumer sectors. Various internet consumer services, including online videos, live streaming, online games and e-commerce, have experienced strong growth and will use increasing amounts of data. Total data generation in China is expected to grow at a CAGR of 29.7% from 9.6 zettabytes in 2019 to 35.2 zettabytes in 2024 according to iResearch. This results in strong demand for cloud services and the underlying data center infrastructure.

- **Application of emerging technologies:** The maturity and mass adoption of emerging technologies, such as cloud computing, 5G, artificial intelligence ("AI"), big data, machine learning, blockchain, internet of things ("IoT"), augmented reality ("AR") and virtual reality ("VR") is further adding to the demand for data processing, storage and transmission capacity. The increasing popularity of work-from-home and the development of smart cities, telemedicine and online education are accelerating the digitalization of traditional industries and bringing data usage to a new level.

- **Rapid adoption of cloud computing:** Adoption of and increased spending in public, private, and hybrid cloud services by enterprises and government agencies in China. According to iResearch, China's cloud services market in terms of revenue was RMB 149.0bn in 2019, as compared with US$ 61.4bn for the US. iResearch expects China's cloud services market to increase at a CAGR of 34.1% from 2019 to 2024, as compared with a CAGR of 5.5% for the US.

Exhibit 28: Market Size of Cloud Services revenue in China (2017-19 CAGR: 46.6%; 19-24E CAGR: 34.1%)



Source(s): iResearch, ABCI Securities

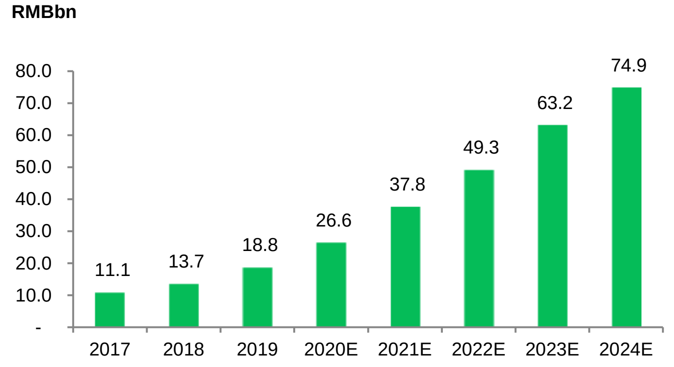
Competitive landscape

- **Carrier-neutral data centers:** Carrier-neutral data centers enable customers to connect with all the telecommunications networks present within their facilities. Carrier-neutral data center service providers vary in terms of data center quality, operational track record and differentiated managed service capabilities. Carriers may sometimes partner with carrier neutral data centers to deliver a complete service package to customers.

- **Carrier-operated data centers:** Telecommunications carriers develop data centers in part to facilitate the sale of related network services. In locations outside of the key economic hubs of China, telecommunications carriers sometimes are the only available providers of data center services. Carrier-operated data centers, offered by China's three major telecommunications carriers, often rely on carriers' own networks for connectivity and lack flexibility for customers to connect to other carriers' networks. In contrast, carrier-neutral data centers offer connectivity to multiple telecommunications carriers in their facilities, providing customers the flexibility to choose which carrier to use based on cost and/or network and application requirements.

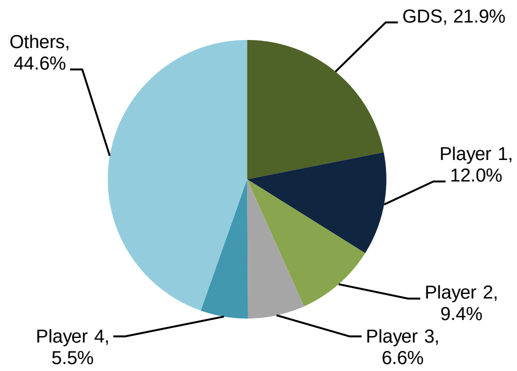
According to iResearch, the total size of China's data center services market, in terms of revenue, was RMB33.4bn in 2019, of which the carrier-neutral market accounted for RMB18.8bn, representing 56.3% of the total market. This compares with a total size of the data center market in the U.S. of US$29.8 billion in 2019. iResearch expects the carrier-neutral market to increase at a CAGR of 31.8% from 2019 to 2024, compared with a CAGR of 9.3% for the U.S. during the same period. The carrier-neutral data center market is fragmented with a few leading service providers with presence across several or all Tier 1 markets competing with different regional companies in each market.

Exhibit 29: Market size of carrier-neutral data center industry in China (2017-19 CAGR: 30.5%; 19-24E CAGR: 31.8%)



Source(s): iResearch, ABCI Securities

Exhibit 30: Market share of carrier-neutral data center players by data center revenue in 2019



Source(s): iResearch, ABCI Securities

Financial statements

Consolidated income statement (2018A-2022E)

FY Ended Dec 31 (RMB mn)	2018A	2019A	2020E	2021E	2022E
Revenue	**3,401**	**3,789**	**4,817**	**6,390**	**8,533**
Cost of services (ex- depreciation)	(1,888)	(2,156)	(2,789)	(3,764)	(5,026)
Gross Profit	**1,513**	**1,633**	**2,028**	**2,626**	**3,507**
Operating expenses (ex- depreciation)	(595)	(583)	(702)	(898)	(1,053)
Adjusted EBITDA	**918**	**1,050**	**1,325**	**1,729**	**2,455**
Depreciation	(635)	(772)	(1,044)	(1,590)	(2,192)
EBIT	**283**	**278**	**282**	**138**	**262**
Loss from equity method investments	(187)	(51)	-	-	-
Interest income	45	55	73	81	74
Finance expenses	(236)	(346)	(475)	(655)	(967)
Share-based compensation	(60)	(44)	(66)	-	-
Other exceptional items#	(8)	(68)	(1,556)	31	31
Profit before tax	**(162)**	**(176)**	**(1,743)**	**(405)**	**(600)**
Tax	(24)	(5)	(9)	(2)	(3)
Profit after tax	**(187)**	**(181)**	**(1,752)**	**(407)**	**(603)**
Minority interest & deemed distribution to perpetual convertible preferred shareholders	(18)	(1)	(23)	(46)	(46)
Net profit	**(205)**	**(182)**	**(1,775)**	**(453)**	**(648)**
Per share*					
Adjusted EBITDA per ADS (RMB)	8.11	9.42	8.47	10.40	14.77
Reported EPS (RMB)	(1.81)	(1.64)	(11.34)	(2.73)	(3.90)
DPS (RMB)	-	-	-	-	-
Payout ratio (%)	0%	0%	0%	0%	0%
BVPS (RMB)	45.01	44.43	37.05	32.17	28.27
Growth %					
Revenue	0.2%	11.4%	27.1%	32.7%	33.5%
Gross Profit	14.5%	8.0%	24.2%	29.5%	33.5%
Adjusted EBITDA	78.2%	14.5%	26.2%	30.4%	42.0%
Net profit	(73.5%)	(11.1%)	873.6%	(74.5%)	43.2%
Margin %					
Gross margin	44.5%	43.1%	42.1%	41.1%	41.1%
Adjusted EBITDA margin	27.0%	27.7%	27.5%	27.1%	28.8%
Net profit	(6.0%)	(4.8%)	(36.8%)	(7.1%)	(7.6%)
Key assumptions					
Number of cabinets	30,654	36,291	53,476	78,476	103,476
Utilization rate	70.6%	66.0%	62.6%	59.7%	58.5%

Other exceptional items included FX losses of RMB28mn and loss on debt extinguishment of RMB19mn in 2019, and changes in the fair value of convertible promissory notes of RMB1.6bn in 2020E

* On fully diluted ADS basis

Source(s): The Company, ABCI Securities estimates

Consolidated balance sheet (2018A-2022E)

As of Dec 31 (RMB mn)	2018A	2019A	2020E	2021E	2022E
Current assets	**4,678**	**5,228**	**7,244**	**6,130**	**7,128**
Bank balances and cash	2,359	1,808	3,814	2,499	3,230
Restricted cash	265	479	479	479	479
Trade receivables	524	657	668	868	1,136
Prepayment, deposits and other receivables	1,160	1,618	1,618	1,618	1,618
Due from related parties	125	302	302	302	302
Other current assets	245	364	364	364	364
Non-current assets	**6,473**	**9,046**	**12,002**	**16,294**	**19,984**
Restricted cash	37	70	70	70	70
Property, plant and equipment	4,031	5,444	8,400	12,692	16,382
Intangible assets	355	411	411	411	411
Goodwill	990	990	990	990	990
Other non-current assets	1,059	2,132	2,132	2,132	2,132
Total Assets	**11,151**	**14,274**	**19,245**	**22,424**	**27,112**
Current Liabilities	**2,191**	**4,469**	**4,724**	**4,968**	**10,303**
Accruals and other payables	659	976	976	976	976
Deferred revenue	58	58	58	58	58
Borrowings	50	235	235	235	5,235
Bonds payable-current	0	911	911	911	911
Current portion of long-term bank borrowings	75	33	33	33	33
Trade payables	390	296	551	795	1,130
Other current liabilities	959	1,961	1,961	1,961	1,961
Non-current liabilities	**3,596**	**4,573**	**7,452**	**10,838**	**10,838**
Other non-current liabilities	942	1,906	1,906	1,906	1,906
Convertible notes	0	0	2,879	6,265	6,265
Long-term borrowings	112	80	80	80	80
Bonds payable	2,038	2,061	2,061	2,061	2,061
Amounts due to related parties	504	527	527	527	527
Total Liabilities	**5,788**	**9,042**	**12,176**	**15,806**	**21,141**
Net Assets	**5,363**	**5,232**	**7,070**	**6,618**	**5,971**
Shareholders' Equity	**5,094**	**4,953**	**5,799**	**5,346**	**4,698**
Preference share	-	-	991	991	991
Minority Interest	269	279	280	281	282
Total Equity	**5,363**	**5,232**	**7,070**	**6,618**	**5,971**
Key ratio					
Gross debt (RMB mn)	2,275	3,318	6,197	9,584	14,584
Net debt/ (cash) (RMB mn)	(386)	961	1,835	6,536	10,805
Net gearing (%)	(7%)	18%	26%	99%	181%

* We expect the huge capex plan in coming years to drive up net gearing. VNET has increasing demand for long-term financial resources and fund raising actitivies

Source(s): The Company, ABCI Securities estimates

Consolidated cash flow statement (2018A-2022E)

As of Dec 31 (RMB mn)	2018A	2019A	2020E	2021E	2022E
Adjusted EBITDA	918	1,050	1,325	1,729	2,455
Change in Working Capital	(213)	(248)	244	43	68
Tax payment	-	-	(9)	(2)	(3)
Operating Cash flow	**705**	**803**	**1,561**	**1,770**	**2,519**
Purchase of PP&E	(435)	(1,249)	(4,000)	(5,882)	(5,882)
Purchase of intangible assets	(18)	(27)	-	-	-
Others	148	(337)	73	81	74
Investing Cash flow	**(305)**	**(1,612)**	**(3,927)**	**(5,802)**	**(5,808)**
Bank and other borrowing raised	70	235	-	-	5,000
Convertible notes raised	-	864	1,292	3,386	-
Interest expenses	-	-	(475)	(655)	(967)
Equity raised	-	-	2,621	-	-
Preference shares raised	-	-	969	(45)	-
Payment to shareholders	-	-	-	-	-
Others	79	(704)	(35)	31	(14)
Financing Cash flow	**9**	**259**	**4,371**	**2,717**	**4,019**
Net cash inflow/ (outflow)	**409**	**(550)**	**2,005**	**(1,314)**	**730**
Cash- beginning	1,950	2,359	1,808	3,814	2,499
Cash- year-end	**2,359**	**1,808**	**3,814**	**2,499**	**3,230**

Source(s): The Company, ABCI Securities estimates

Disclosures

Analyst Certification

I, Tung Yiu Kei Kenneth, being the person primarily responsible for the content of this research report, in whole or in part, hereby certify that all of the views expressed in this report accurately reflect my personal view about the subject Company or companies and its or their securities. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed in this report. I and/or my associates have no financial interests in relation to the listed Company (ies) covered in this report, and I and/or my associates do not serve as officer(s) of the listed Company (ies) covered in this report.

Definition of equity rating

Rating	Definition
Buy	Stock return rate≥ Market return rate (~10%)
Hold	- Market return rate (-~10%) ≤ Stock return rate < Market return rate (+~10%)
Sell	Stock return < - Market return (-~10%)

Notes: Stock return rate: expected percentage change of share price plus gross dividend yield over the next 12 months
Market return rate: average market return rate since 2008(For reference: HSI total return index 2008-20CAGR at 9.2%)

Disclosures of Interests

ABCI Securities Company Limited and/or its affiliates, within the past 12 months, have investment banking relationship with GDS.

Disclaimers

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