

## Arista

### TOP IDEA: Cloud Uncertainty Distracting from Enterprise Oppty; See 17%-22% Growth on Stable to Moderating Cloud Share

Investor perception is for a strong correlation of Arista's revenue growth to the Cloud vertical, and while that was largely appropriate in recent history, the strong growth trajectory with Enterprises and the increasing relevance of this customer vertical – where there is a lot of upside for market share – has largely been ignored by investors. Recent comments from Arista management in relation to uncertainty relative to (large) Cloud growth in 2021 given timing of large projects and limited opportunity to gain share with Cloud Titans on account of saturated market share has led to a bearish sentiment on the shares, but as we outline in this report, **the bearish sentiment ignores the strong growth in the range of 17% to 22% that Arista can deliver** as Enterprises return to normal spending trends post COVID, even with growth in (large) Cloud ranging between 5% (embedding massive share loss as in the bear thesis) and 18% (maintaining share through the 400G cycle). **Reiterate Overweight rating and our top pick for ANET shares where investors distracted with Cloud growth have failed to appreciate the strong growth sustainable through share gains in the Enterprise vertical alone.**

- **Cloud focus has distracted investors from appreciating the growth in the Enterprise vertical.** Arista's Product revenue has expanded at 30%-40% annually, led by +34% CAGR (2015-18) in Cloud. While Cloud growth overshadowed Enterprise, Arista's Enterprise revenues have expanded at a +32% CAGR, and now accounts for 40% of Product revenue.
- **Saturated share in (large) Cloud, but huge headroom in Enterprise DC and Campus.** Arista's share in the \$5 bn Cloud market is already 17%, implying >50% share with top customers (Microsoft and Facebook), leaving less room for higher share. On the other hand, large Enterprise Data Center is \$4 bn revenue opportunity and Arista has mid-teens share and limited competition from white-box, and Campus is a \$13 bn revenue opportunity with Arista's share ~1%.
- **Forecast +17% CAGR for Large Enterprise DC revenue, and revenue growth of \$100-\$150 mn annually in Campus.** Arista's gained about 150-200 bps share annually in large Enterprise DC pre-pandemic when the underlying market opportunity expanded at a +20% CAGR. Post-pandemic growth rate is expected to moderate to +7% with adoption of public cloud, but similar pace of share gains will drive +17% revenue CAGR with Enterprise. For Campus, we assume modest share gains each year following the roll-out of a broader portfolio, including \$400 mn of revenue in 2023, +70% CAGR off a low-base.
- **17% to 22% growth sustainable despite Cloud uncertainty; expect rebound in valuation premium with growth.** Our math outlines a broad range of outcomes on (large) Cloud revenue growth, from low-end of 5% (assuming significant share loss) to high-end of 18% (maintain share), equate to total revenue growth between 17% and 22%, led by increasing relevance of other verticals. Returns to these growth levels post-pandemic on a sustainable basis will lead to a stronger valuation premium and upward earnings revisions.

Sources for: Style Exposure – J.P. Morgan Quantitative and Derivatives Strategy; all other tables are company data and J.P. Morgan estimates.

## Overweight

ANET, ANET US

Price (25 Mar 21): \$292.00

Price Target (Dec-21): \$365.00



### Telecom & Networking Equipment/IT Hardware

**Samik Chatterjee, CFA** <sup>AC</sup>

(1-212) 622 0798

samik.x.chatterjee@jpmorgan.com

J.P. Morgan Securities LLC

**Joseph Cardoso**

(1-212) 622-9036

joseph.cardoso@jpmchase.com

J.P. Morgan Securities LLC

**Bharat Daryani**

(1-212) 622 8039

bharat.daryani@jpmchase.com

J.P. Morgan India Private Limited

### Quarterly Forecasts (FYE Dec)

Adj. EPS (\$)	2020A	2021E	2022E
Q1	2.02	2.41	2.66
Q2	2.11	2.50	3.00
Q3	2.42	2.65	3.41
Q4	2.49	2.78	3.63
FY	9.04	10.35	12.70

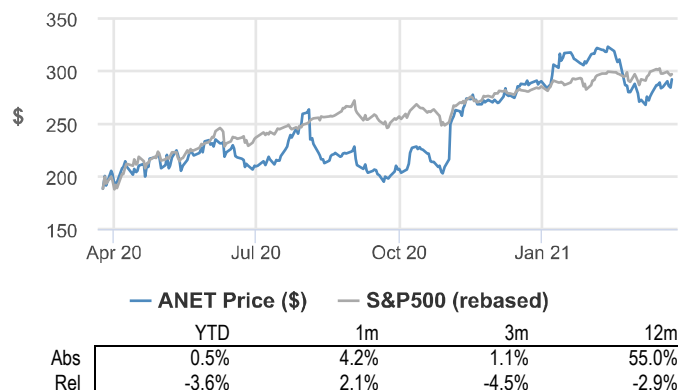
### Style Exposure

Quant Factors	Current %Rank	Hist %Rank (1=Top)			
		6M	1Y	3Y	5Y
Value	52	53	62	86	78
Growth	66	30	12	8	18
Momentum	61	81	76	9	71
Quality	28	19	4	4	8
Low Vol	31	39	56	73	66
ESGQ	21	26	17	81	-

See page 18 for analyst certification and important disclosures, including non-US analyst disclosures.

J.P. Morgan does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

## Price Performance



## Company Data

Shares O/S (mn)	79
52-week range (\$)	326.60-185.03
Market cap (\$ mn)	23,144.21
Exchange rate	1.00
Free float(%)	73.2%
3M - Avg daily vol (mn)	0.59
3M - Avg daily val (\$ mn)	177.0
Volatility (90 Day)	27
Index	S&P 500
BBG BUY HOLD SELL	18 11 0

## Key Metrics (FYE Dec)

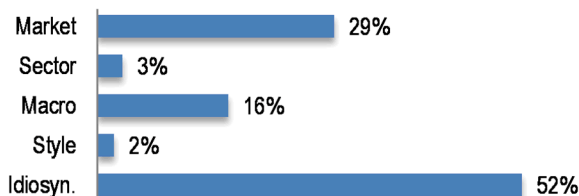
\$ in millions	FY20A	FY21E	FY22E
<b>Financial Estimates</b>			
Revenue	2,318	2,700	3,262
Adj. EBIT	875	1,044	1,311
Adj. EBITDA	919	1,079	1,353
Adj. net income	718	829	1,037
Adj. EPS	9.04	10.35	12.70
BBG EPS	8.98	10.09	11.33
Cashflow from operations	735	757	1,033
FCFF	692	727	991
<b>Margins and Growth</b>			
Revenue growth	(3.9%)	16.5%	20.8%
EBIT margin	37.7%	38.7%	40.2%
EBIT growth	(5.2%)	19.3%	25.5%
EBITDA margin	39.7%	40.0%	41.5%
EBITDA growth	(3.8%)	17.4%	25.4%
Net margin	31.0%	30.7%	31.8%
Adj. EPS growth	(7.0%)	14.4%	22.8%
<b>Ratios</b>			
Adj. tax rate	21.0%	21.5%	21.5%
Interest cover	NM	NM	NM
Net debt/Equity	NM	NM	NM
Net debt/EBITDA	NM	NM	NM
ROE	23.1%	22.8%	23.7%
<b>Valuation</b>			
FCFF yield	3.0%	3.1%	4.2%
Dividend yield	-	-	-
EV/Revenue	9.3	8.0	6.6
EV/EBITDA	23.5	20.0	16.0
Adj. P/E	32.3	28.2	23.0

## Summary Investment Thesis and Valuation

Our Overweight rating on ANET shares is based on our expectation for a revenue acceleration from the uptick in cloud capex spending from cloud titan customers heading into 2021, and favorable positioning for upside from 400G adoption at hyperscale customers.

Our Dec 2021 price target of \$365 is based on valuing our 2022E EPS of \$12.70 at ~29x P/E multiple. We believe a ~29x P/E multiple is appropriate given: 1) modestly above the current NTM multiple; 2) embeds the potential revenue acceleration from cloud capex uptick and ramp of 400G cycle in 2021/22; and 3) represents a modest discount to the longer-term multiple of ~30x on greater volatility in spending with its largest customers, Microsoft and Facebook.

## Performance Drivers



Factors	6M Corr	1Y Corr
<b>Market:</b> MSCI US	0.74	0.63
<b>Sect:</b> Technology	0.30	0.20
<b>Ind:</b> Tech Hard Equip	0.19	0.10
<b>Macro:</b>		
US 10yr yield	-0.24	-0.27
Economic Surprise	-0.13	-0.13
Credit Spread	-0.42	0.11
<b>Quant Styles:</b>		
Growth	0.35	0.31
Value	-0.33	-0.28
Momentum	0.37	0.25

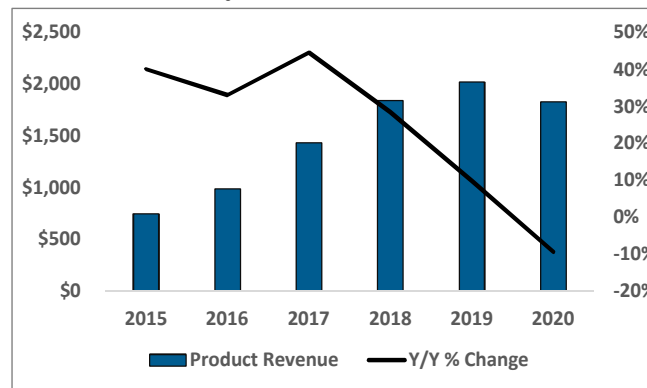
## Growth Moderation Led by Cloud Has Distracted Investors from Enterprise Growth

### Robust product revenue growth has come under pressure in recent years

As illustrated in Figure 1, Arista's product revenue has grown within a range of +30% to +40% per annum between 2015 and 2018 before moderating to growth of +10% in 2019, led by Cloud customers slowing down infrastructure investments to digest the inventory of capacity built during the period of strong investment as well as an increasing focus on driving efficiencies through higher utilization of technology hardware. Following up the period of slower growth in investments in 2019, expectations were for investments from Cloud to rebound in 2020; however, the push out in new datacenter construction in conjunction with COVID-19 led to a decline of about -9% in 2020 for Arista revenues (closer to -5% excluding deferred revenue, which benefitted 2019).

**Figure 1: Arista's Product Revenue**

\$ in Millions, Y/Y % Change



Source: Company reports.

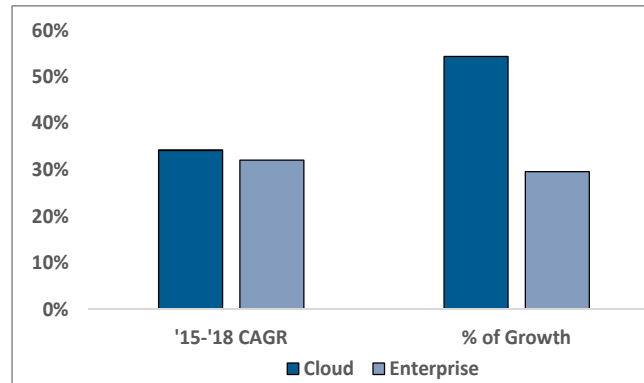
### Focus has historically been on Cloud, but Arista would have recorded a +20% CAGR in Product revenue excluding it

Unsurprisingly, following the strong growth that Arista demonstrated between 2015 to 2018, Arista's exposure to Cloud customers increased to as much as 55%-60% of total company revenues in 2018. The majority of revenue and growth coming from Cloud meant that Arista was perceived by investors as a company largely leveraged to Cloud for its growth.

That said, underlying the solid execution in the Cloud vertical has been a gradual improvement in the Enterprise vertical, which has seen the mix improve from ~30% to ~40% of Product revenue, with annual revenue growth rates in the +25% to +35% range. As shown in Figure 2, Enterprise revenues increased at a 32% CAGR between 2015 and 2018, which compares to a 34% CAGR in Cloud revenues; however, contributed 30% of the total growth over that period, which was dwarfed by the growth contribution from Cloud.

**Figure 2: Cloud vs. Enterprise Growth Contribution**

Y/Y % Change, % of Total



Source: Dell'Oro.

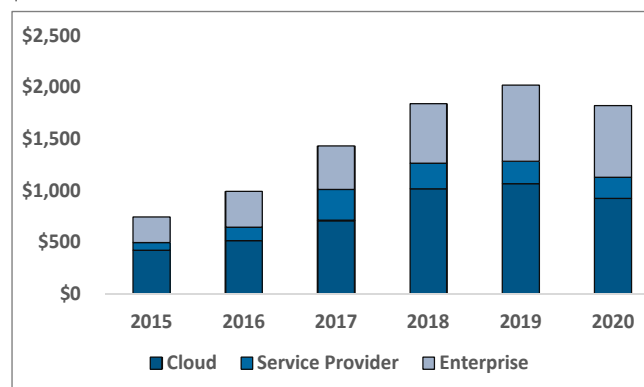
Said differently, if Arista had seen no growth in Cloud revenues between 2015 and 2018 (which ended up growing at a 34% CAGR), **Product revenues** would have expanded at a 19% CAGR instead of the 35% recorded.

### Enterprise now significantly more important for Arista

As shown in Figure 3, following the slower growth from the Cloud vertical (as well as the Service Provider) over the last couple of years, the Enterprise vertical is now significantly more important for the company. As of last year, the Enterprise vertical accounted for ~40% of Product revenues relative to ~30% in 2018.

**Figure 3: Arista's Product Revenue Breakdown**

\$ in Millions



Source: Dell'Oro.

### Share Gain Led Opportunity in Enterprise

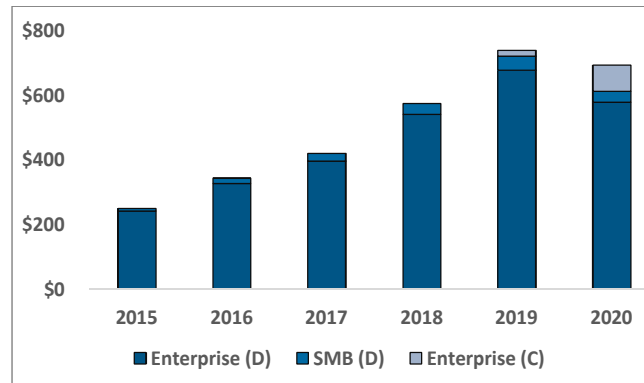
#### Arista's Enterprise revenue has been largely limited to datacenter products

While there has been a gradual improvement in the mix of revenue accounted for by Enterprise customers, it has been limited to demand for datacenter products leveraged in that vertical as campus product revenue only began to ramp in 2019. As illustrated in Figure 4, datacenter products accounted for 100% of the enterprise revenue through 2018, and it was not until 2019 in which campus products accounted for a low-single digit percentage of Enterprise revenue, and subsequently increased to a mid-teen percentage of Enterprise revenue in 2020. *Importantly, unlike the rest*

*of the portfolio, campus products demonstrated strong growth in 2020, despite COVID-19 headwinds.*

**Figure 4: Arista's Enterprise Revenue Breakdown**

\$ in Millions



Note: "D" and "C" denotes datacenter and campus, respectively.

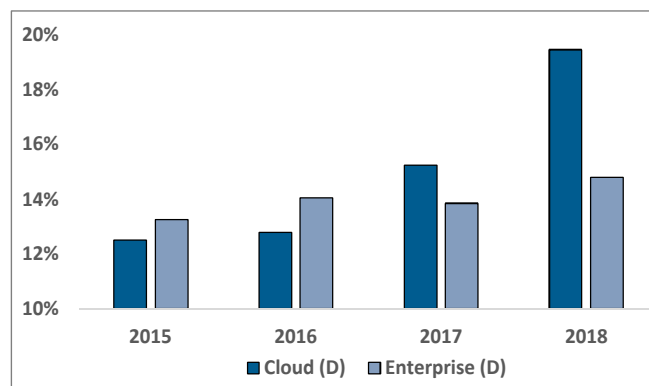
Source: Dell'Oro.

### Above-peer group growth has been driven by share gains while customer spend towards Networking has increased at a lower rate

Looking back at the growth CAGR demonstrated by Arista in the 2015-2018 time period, share gains for Arista in both the Cloud and the Enterprise vertical makes it amply clear that the underlying spend from both the customer verticals towards networking equipment was at a much lower rate.

**Figure 5: Arista's Cloud and Large Enterprise Market Share**

% of Total

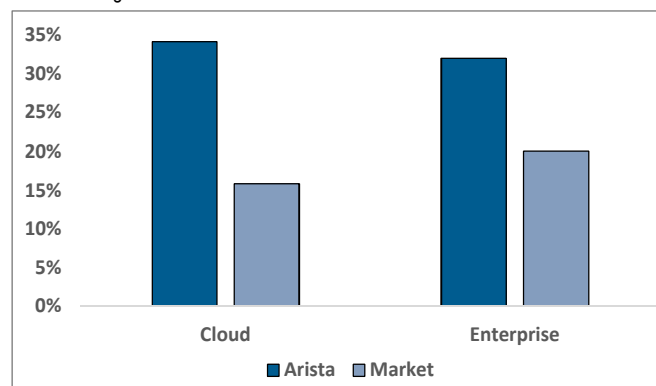


Note: "D" and "C" denotes datacenter and campus, respectively.

Source: Dell'Oro.

**Figure 6: Arista's Outperformance vs. the Market**

Y/Y % Change



Note: "D" and "C" denotes datacenter and campus, respectively.

Source: Dell'Oro.

### Saturated share with large Cloud companies to drive focus back to growth with Enterprises

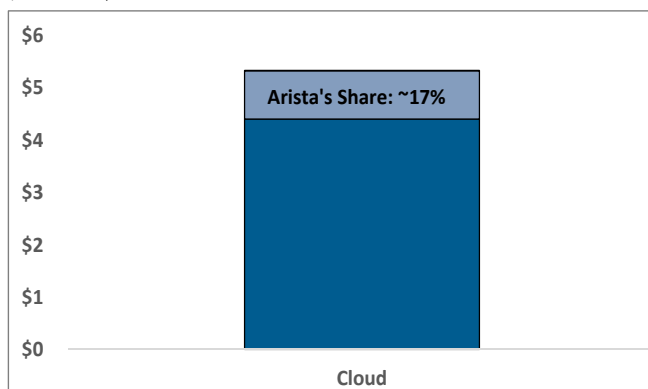
As shown in Figure 7, Arista's share with Cloud companies (for which the datacenter switching revenue opportunity is roughly ~\$5 bn) is at ~17%, and is roughly ~22% with large Cloud companies. While on the surface it might appear that there is headroom for share gains, Arista's top customers, Facebook and Microsoft, account for ~41% of total capex spend from Large Cloud companies – Alibaba, Apple, Amazon, Baidu, Facebook, Google, Microsoft and Tencent, which would imply

Arista already has more than 50% of the share of the available opportunity near- to medium-term (not withstanding any major strategic changes in use of white box from Google or Amazon).

Relative to the \$5 bn revenue opportunity for datacenter switching with Cloud providers, the total Enterprise revenue opportunity across both datacenter switching and campus products is about \$20 bn and on a combined basis across the two market opportunities, Arista has only a low-single digit share.

**Figure 7: Arista's Cloud Market Share**

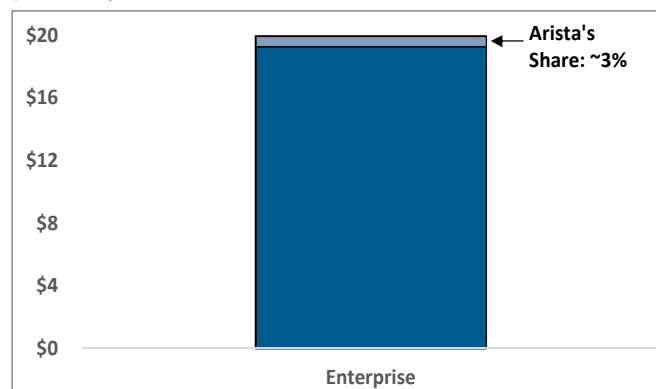
\$ in Billions, % of Total



Source: Dell'Oro.

**Figure 8: Arista's Enterprise Market Share (including Campus)**

\$ in Billions, % of Total



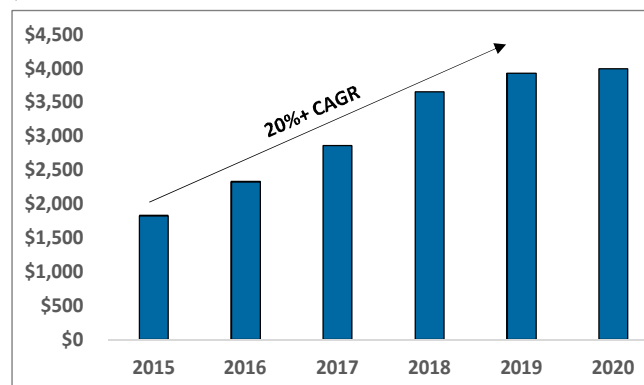
Source: Dell'Oro.

**Investors have ascribed to some myths around the Enterprise revenue opportunity, including very modest underlying growth**

Investors we speak to consider the Enterprise datacenter market to be one of slower growth, more in line with the growth in Enterprise IT spending in the low-single digit range. On the contrary, a look at the datacenter switching revenue opportunity with Large Enterprises, which are the primary targets for Arista products in the early stages of adoption, have demonstrated roughly +20% growth CAGR over the years pre-pandemic.

**Figure 9: Large Enterprise Datacenter Market**

\$ in Millions



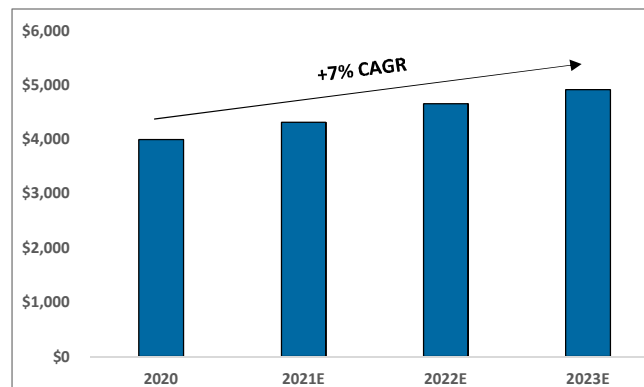
Source: Dell'Oro.

### Growth for Large Enterprises is expected to moderate, but to high-single digit level

As shown in the Dell'Oro forecast in Figure 10, the growth in datacenter switching revenue with Large Enterprises is expected to moderate, led partly by adoption of public cloud, but only to a high-single digit level with focus of investments from Large Enterprises remaining towards hybrid cloud infrastructure.

**Figure 10: Large Enterprise Datacenter Market**

\$ in Millions



Source: Dell'Oro.

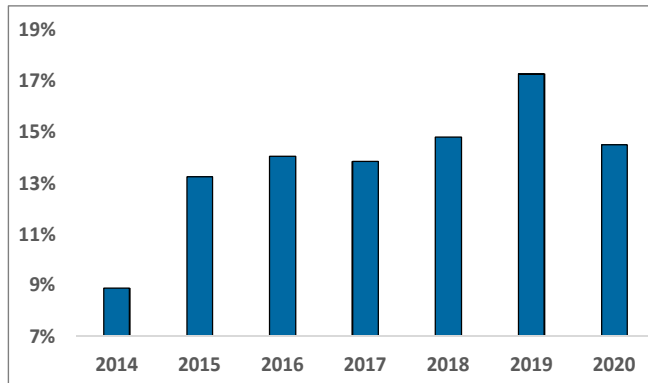
### Arista's Enterprise datacenter share has room to run without any threat from white box

As shown in Figure 11, Arista's share in datacenter switching with Large Enterprises has progressed from 9% in 2014 to 17% in 2019 (before moderating with the pull back in conjunction with COVID-19) — or roughly 150-200 bps of share gains per year pre-pandemic.

At the same time, Arista's share of in datacenter switching with SMBs has remained modest at 1%. While at the surface, Arista's 17% share with Large Enterprises might appear very similar to its share in large cloud companies, the headroom for share gains is much higher on account of the absence of white box adoption.

**Figure 11: Arista's Large Enterprise Datacenter Market Share**

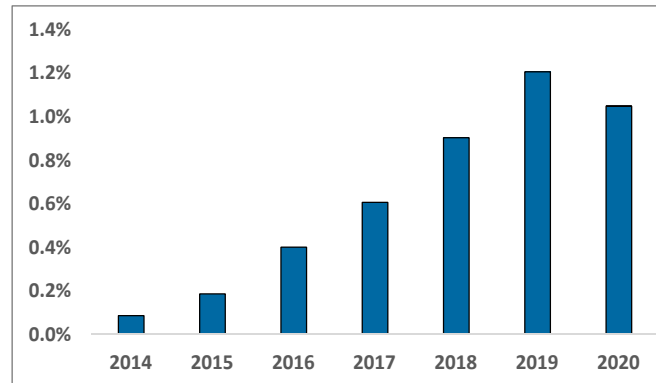
% of Total



Source: Dell'Oro.

**Figure 12: Arista's SMB Datacenter Market Share**

% of Total



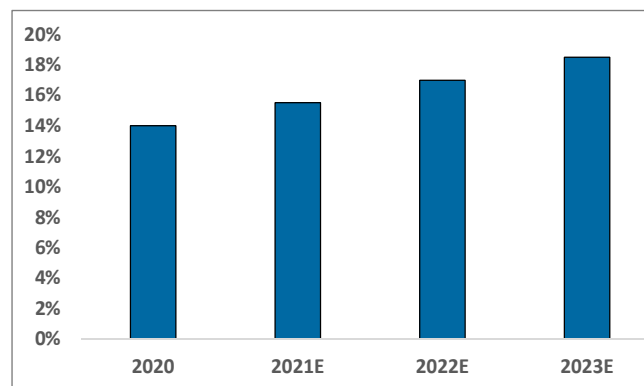
Source: Dell'Oro.

### **150 bps of market share gains annually can support +17% revenue growth in Enterprise datacenter**

Even if the growth rate for the underlying Large Enterprise datacenter switching market were to moderate to high-single digit growth, if Arista continues to expand share by about 150 bps annually – in line with the pace of gains over the 2014-2019 time period – it should be able to support a +17% revenue CAGR for Arista in Large Enterprise datacenter switching.

**Figure 13: Arista's Large Enterprise Datacenter Market Share**

% of Total



Source: Dell'Oro and J.P. Morgan estimates.

### **Share gains and adoption beyond Large Enterprises in the SMB space can lead to further acceleration in growth**

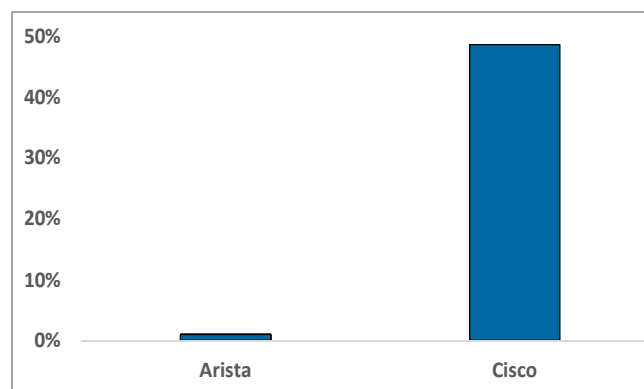
The datacenter switching revenue opportunity with SMB customers is modestly lower than the opportunity in the Large Enterprise market, and amounted to about \$3 bn of revenue relative to \$4 bn with Large Enterprises. However, Arista's share of the SMB market remains at modest 1% vs. peak of 17% in Large Enterprises. While adoption of Arista's products with SMB customers is likely slower on account of reliance of smaller size customers on traditional solutions from Cisco, Arista's growth with SMB customers will lead to an incremental upside driver for Arista than the above estimated through share gains in Large Enterprises alone.



### Are share gains with SMB in DC switching realistic?

We believe the primary driver of share gains with SMB customers is providing end-to-end solutions relative to product solutions, as evidenced in the high share that Cisco has in this part of the market. Importantly, Arista has begun to make significant inroads relative to broadening its portfolio, including the expansion of its lineup of campus products, which includes the modular 7300X3 and fixed 7050X3 spline switches (3Q18), 720 and 750 leaf PoE switches (4Q20) as well as Wi-Fi 6 access points (Mojo acquisition in 3Q18).

**Figure 14: SMB Enterprise Datacenter Market Share**  
% of Total



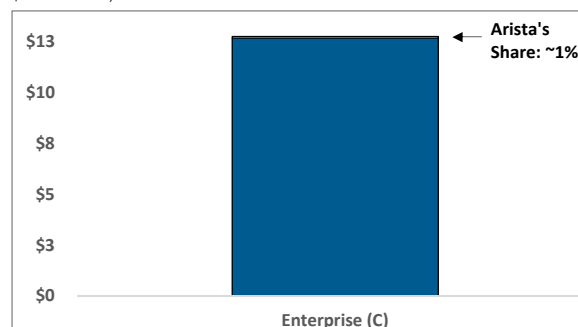
Source: Dell'Oro.

## Enterprise Campus Opportunity

### Campus represents the over-the-top growth accelerator

Outside of the datacenter switching market opportunity with Enterprise customers (both Large Enterprises and SMB customers), which amounts to \$7 bn, the opportunity in relation to the Enterprise campus market is larger as it stands at roughly \$13 bn in total. Arista's less than \$100 mn of revenue from campus products in 2020 means that Arista has less than 1% share of the market. *Importantly, Arista has disclosed its ambition to increase its share in the campus market to a similar level as in the datacenter market (see report [here](#)).*

**Figure 15: Arista's Enterprise Campus Market Share**  
\$ in Billions, % of Total



Note: "D" and "C" denotes datacenter and campus, respectively.

Source: Dell'Oro.

### Arista targeting strong growth in campus; albeit, from a low base

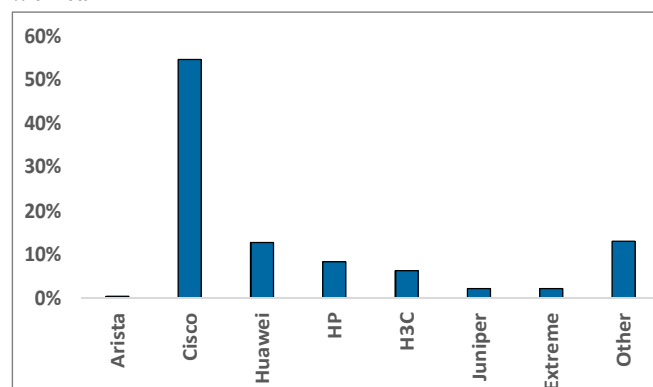
Arista is targeting doubling the run-rate of campus revenues from \$100 mn/year to roughly ~\$200 mn/year in 2021, implying doubling the run-rate of revenue and share – assuming limited growth in Enterprise campus. While it is unrealistic to expect Arista to double revenues every twelve months going forward, if we assume roughly \$100-\$150 mn of revenue growth per year, it would imply a \$700 mn revenue run-rate by 2025 or only ~4% market share.

### Fragmented market share in WLAN and campus switching provides room for modest share gains

As shown in Figure 16 and Figure 17, the WLAN and campus switching market remains fragmented beyond the large market share with Cisco. That leaves opportunity for Arista to gain share modestly from Cisco – whose share has moderated slightly every year historically – but more importantly from the fragmented base of Tier 2 campus suppliers.

Figure 16: Campus Market Share – Arista and Top Six Vendors

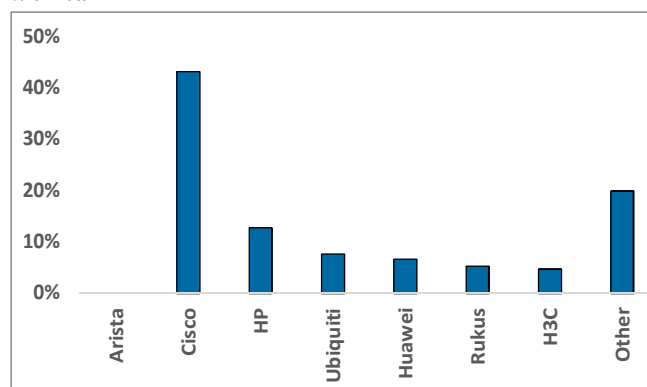
% of Total



Source: Dell'Oro.

Figure 17: WLAN Market Share – Arista and Top Six Vendors

% of Total



Source: Dell'Oro.

### Forecast for \$400 mn and \$700 mn in Campus revenue by 2023 and 2025, respectively

We believe Arista achieving \$700 mn in campus revenue by 2025 is a conservative forecast given that it implies the company is capturing less than \$1 of campus spend from their customers relative to \$1 of spend on datacenter switching. By comparison, given the market size between Enterprise datacenter and campus, the typical enterprise customer spends slightly more than \$3 on campus products (\$2 on switching and \$1 on WLAN) for every \$1 of spend on datacenter switching.

### Uncertainty around Cloud, But Growth Can Be Driven by Enterprise

#### Recent comments from Arista management has led investors to be concerned about the sustainability of strong growth

Arista management has recently communicated: 1) uncertainty relative to Cloud revenue growth in 2H21 given the likelihood of slippage of timing for large projects; and 2) limited opportunity for share gain with Cloud Titans on account of the saturated share with the large cloud companies that are willing to leverage branded equipment vendors.

The tone had led to concerns from investors that Arista might be challenged in driving growth with Cloud, as well as overall strong top-line growth with uncertainty persisting around growth in the Cloud.

However, as we outline in the scenarios below, we believe Arista can sustain a strong top-line growth even in absence of strong growth with Cloud, although growth would accelerate if growth with Cloud comes in strong.

**Scenario 1: Cloud Hyperscale Revenue Growth Lower than Industry; But Double-digit – Implies +19% Revenue CAGR for Arista**

As shown in Table 1, we assume:

1. Arista's revenue growth with Cloud Titan customers over the next three years is below the +18% growth CAGR expected for datacenter switching revenues with large Cloud customers.
2. Arista's revenue growth with Large Enterprises at a mid-teens CAGR on account of increasing share at ~150 bps annually.
3. Revenues from campus hardware sales of roughly \$400 mn, with about \$100 mn increase per year.
4. Services growth ahead of Product revenue growth with increasing revenue mix from Enterprises.

**Table 1: Arista Revenue Forecast by Customer Vertical**

\$ in Billions

Customer Vertical	2020	2023E	CAGR	Market Growth
Cloud Titans	\$0.7	\$0.9	10%	18%
Tier-2 Cloud	\$0.3	\$0.4	20%	19%
Service Provider	\$0.2	\$0.3	12%	12%
Enterprise Datacenter	\$0.6	\$0.9	17%	7%
SMB Datacenter	\$0.0	\$0.0	-17%	-28%
Enterprise Campus	\$0.1	\$0.4	70%	4%
Services	\$0.5	\$0.9	24%	N/A
<b>Total</b>	<b>\$2.3</b>	<b>\$3.9</b>	<b>19%</b>	<b>N/A</b>

Source: Dell'Oro and J.P. Morgan estimates.

The implied share in the different customer verticals on assuming the above growth are:

**Table 2: Arista Market Share Assumption by Customer Vertical**

% of Total

Customer Vertical	2020	2023E
Cloud Titans	22%	18%
Tier-2 Cloud	11%	11%
Service Provider	23%	23%
Enterprise Datacenter	14%	19%
SMB Datacenter	1%	2%
Enterprise Campus	1%	3%

Source: Dell'Oro and J.P. Morgan estimates.

## Scenario 2: Cloud Hyperscale Revenue Growth in Line with Industry – Implies +22% Revenue CAGR for Arista

As shown in Table 3, we assume:

1. Arista's revenue growth with Cloud Titan customers over the next three years is in line with the +18% growth CAGR expected for datacenter switching revenues with large Cloud customers.
2. All other assumptions remain same as Scenario 1.

**Table 3: Arista Revenue Forecast by Customer Vertical**

\$ in Billions

Customer Vertical	2020	2023E	CAGR	Market Growth
Cloud Titans	\$0.7	\$1.1	18%	18%
Tier-2 Cloud	\$0.3	\$0.4	20%	19%
Service Provider	\$0.2	\$0.3	12%	12%
Enterprise Datacenter	\$0.6	\$0.9	17%	7%
SMB Datacenter	\$0.0	\$0.0	-17%	-28%
Enterprise Campus	\$0.1	\$0.4	70%	4%
Services	\$0.5	\$1.0	27%	N/A
<b>Total</b>	<b>\$2.3</b>	<b>\$4.2</b>	<b>22%</b>	<b>N/A</b>

Source: Dell'Oro and J.P. Morgan estimates.

The implied share in the different customer verticals on assuming the above growth are:

**Table 4: Arista Market Share Assumption by Customer Vertical**

% of Total

Customer Vertical	2020	2023E
Cloud Titans	22%	22%
Tier-2 Cloud	11%	11%
Service Provider	23%	23%
Enterprise Datacenter	14%	19%
SMB Datacenter	1%	2%
Enterprise Campus	1%	3%

Source: Dell'Oro and J.P. Morgan estimates.

## Scenario 3: Cloud Hyperscale Revenue Growth Well Below Industry at Mid-single Digit – Implies +17% Revenue CAGR for Arista

As shown in Table 5, we assume:

1. Arista's revenue growth with Cloud Titan customers over the next three years is well below the +18% growth CAGR expected for datacenter switching revenues with large Cloud customers.
2. All other assumptions remain same as Scenario 1

**Table 5: Arista Revenue Forecast by Customer Vertical**

\$ in Billions

Customer Vertical	2020	2023E	CAGR	Market Growth
Cloud Titans	\$0.7	\$0.8	5%	18%
Tier-2 Cloud	\$0.3	\$0.4	20%	19%
Service Provider	\$0.2	\$0.3	12%	12%
Enterprise Datacenter	\$0.6	\$0.9	17%	7%
SMB Datacenter	\$0.0	\$0.0	-17%	-28%
Enterprise Campus	\$0.1	\$0.4	70%	4%
Services	\$0.5	\$0.9	22%	N/A
<b>Total</b>	<b>\$2.3</b>	<b>\$3.7</b>	<b>17%</b>	<b>N/A</b>

Source: Dell'Oro and J.P. Morgan estimates.

The implied share in the different customer verticals on assuming the above growth are:

**Table 6: Arista Market Share Assumption by Customer Vertical**

% of Total

Customer Vertical	2020	2023E
Cloud Titans	22%	16%
Tier-2 Cloud	11%	11%
Service Provider	23%	23%
Enterprise Datacenter	14%	19%
SMB Datacenter	1%	2%
Enterprise Campus	1%	3%

Source: Dell'Oro and J.P. Morgan estimates.

## Valuation Premium Mirrors Growth

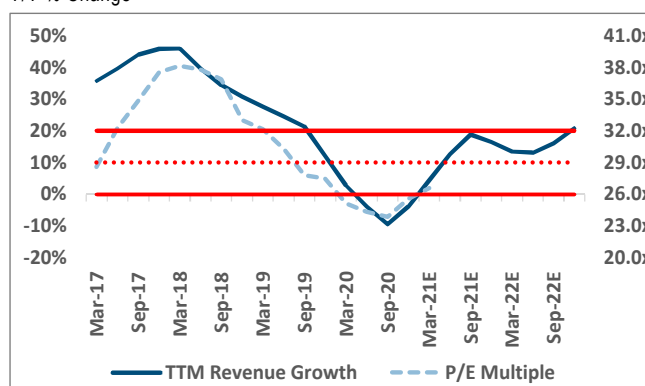
### Return to strong top-line growth to drive premium multiple

As illustrated in Figure 18, Arista's revenue growth has a strong correlation to the P/E multiple at which investors are willing to value the shares, with periods of strong top-line growth driving a higher earnings multiple.

We expect Arista's revenue rebound to mid- to high-teens growth in 2021, followed by growth in the high-teens to low-20% growth in 2022/23 to lead to a premium multiple on the earnings power in the out-year — where we expect positive revisions to sell-side estimates.

**Figure 18: Arista's TTM Revenue Growth vs. P/E Multiple**

Y/Y % Change



Source: Company reports, Bloomberg Finance L.P. and J.P. Morgan estimates.

**Limited track record and scarcity of high-growth hardware companies makes it difficult to predict an appropriate earnings multiple**

The most obvious investor question has been the appropriate earnings multiple to pay for the shares of a company that is positioned to expand top-line at a +20% pace, given the limited peer group in hardware with similar credentials as well as limited track record of Arista in delivering consistent growth.

However, we expect the valuation multiples to increase from the current levels (28x NTM P/E) and reflect the improving revenue growth trajectory.

## Investment Thesis, Valuation and Risks

### Arista Networks Inc. (Overweight; Price Target: \$365.00)

#### Investment Thesis

Our Overweight rating on ANET shares is based on our expectation for a revenue acceleration from the uptick in cloud capex spending from cloud titan customers heading into 2021, and favorable positioning for upside from 400G adoption at hyperscale customers.

#### Valuation

Our Dec 2021 price target of \$365 is based on valuing our 2022E EPS of \$12.70 at ~29x P/E multiple. We believe a ~29x P/E multiple is appropriate given: 1) modestly above the current NTM multiple; 2) embeds the potential revenue acceleration from cloud capex uptick and ramp of 400G cycle in 2021/22; and 3) represents a modest discount to the longer-term multiple of ~30x on greater volatility in spending with its largest customers, Microsoft and Facebook.

#### ANET P/E Based Price Target Analysis

\$ mns, except per share data

	NTM Qtrs 1-4	2022E
JPM Net Income	829	1037
JPM EPS	\$10.34	\$12.70
P/E Multiple	28.2x	
JPM P/E Multiple		29x
Implied Equity Value	23,144	29,823
Average Diluted Share Count	79	82
<b>Implied Share Price</b>	<b>\$292.0</b>	<b>\$365.0</b>
Current Value per Share	\$292.00	\$292.00
Upside vs. Current		25%
<u>Memo:</u>		
(-) Net Cash/(Debt)	2,873	4,210
Enterprise Value	20,271	25,613
JPM EBITDA	1,079	1,353
<i>Implied EV/EBITDA</i>	<i>18.8x</i>	<i>18.9x</i>

Source: Company reports and J.P. Morgan estimates.

#### Risks to Rating and Price Target

##### Industry Downside Risks

**Adoption of white box solutions remains a threat.** While it is difficult to drive superior performance using white box solutions (non-branded switches available off-the-shelf) relative to switches from established technology leaders like Arista or

Cisco, the improving capabilities of the white box solutions over time could drive customers to use them for parts of the network with lower performance requirements. Faster than expected adoption of white box solutions could imply downside to our Arista earnings forecasts and price target.

*Company-Specific Downside Risks*

**Faster than expected shift toward disaggregated software solutions from datacenter customers could challenge Arista.** Arista delivers industry-leading switching technology through a combination of hardware and software, although a significant portion of the value-add is driven by software. While Arista has already started to offer disaggregated software products to its customers, these do not account for a significant portion of revenues yet. A faster than expected shift from customers toward proprietary software and generic hardware could create competitive challenges for Arista.



## Arista: Summary of Financials

Income Statement - Annual						Income Statement - Quarterly				
	FY19A	FY20A	FY21E	FY22E	FY23E		1Q21E	2Q21E	3Q21E	4Q21E
Revenue	2,411	2,318	2,700	3,262	-	Revenue	644	658	687	711
COGS	(851)	(812)	(942)	(1,135)	-	COGS	(228)	(230)	(238)	(246)
Gross profit	1,559	1,506	1,758	2,127	-	Gross profit	416	428	449	465
SG&A	(227)	(232)	(267)	(301)	-	SG&A	(66)	(66)	(68)	(68)
Adj. EBITDA	956	919	1,079	1,353	-	Adj. EBITDA	250	260	277	292
D&A	(33)	(45)	(35)	(42)	-	D&A	(8)	(9)	(9)	(9)
Adj. EBIT	923	875	1,044	1,311	-	Adj. EBIT	242	251	268	283
Net Interest	51	35	12	12	-	Net Interest	3	3	3	3
Adj. PBT	974	910	1,056	1,322	-	Adj. PBT	245	254	271	286
Tax	(187)	(191)	(227)	(285)	-	Tax	(53)	(55)	(58)	(61)
Minority Interest	-	-	-	-	-	Minority Interest	-	-	-	-
Adj. Net Income	787	718	829	1,037	-	Adj. Net Income	192	200	213	224
Reported EPS	9.73	9.04	10.35	12.70	-	Reported EPS	2.41	2.50	2.65	2.78
Adj. EPS	9.73	9.04	10.35	12.70	-	Adj. EPS	2.41	2.50	2.65	2.78
DPS	-	-	-	-	-	DPS	-	-	-	-
Payout ratio	-	-	-	-	-	Payout ratio	-	-	-	-
Shares outstanding	81	79	80	82	-	Shares outstanding	80	80	80	81
Balance Sheet & Cash Flow Statement						Ratio Analysis				
	FY19A	FY20A	FY21E	FY22E	FY23E		FY19A	FY20A	FY21E	FY22E
Cash and cash equivalents	1,116	893	1,434	2,234	-	Gross margin	64.7%	65.0%	65.1%	65.2%
Accounts receivable	392	390	474	557	-	EBITDA margin	39.6%	39.7%	40.0%	41.5%
Inventories	244	480	493	526	-	EBIT margin	38.3%	37.7%	38.7%	40.2%
Other current assets	1,720	2,075	2,083	2,106	-	Net profit margin	32.6%	31.0%	30.7%	31.8%
Current assets	3,472	3,837	4,484	5,424	-	ROE	31.2%	23.1%	22.8%	23.7%
PP&E	39	32	17	8	-	ROA	21.7%	16.1%	16.4%	17.8%
LT investments	4	8	8	8	-	ROCE	29.4%	22.2%	22.5%	23.5%
Other non current assets	670	861	861	861	-	SG&A/Sales	9.4%	10.0%	9.9%	9.2%
Total assets	4,185	4,739	5,371	6,301	-	Net debt/equity	NM	NM	NM	NM
Short term borrowings	0	0	0	0	-	P/E (x)	30.0	32.3	28.2	23.0
Payables	92	134	119	152	-	P/BV (x)	7.7	6.7	5.6	4.6
Other short term liabilities	505	634	653	712	-	EV/EBITDA (x)	22.6	23.5	20.0	16.0
Current liabilities	597	768	772	864	-	Dividend Yield	-	-	-	-
Long-term debt	0	0	0	0	-	Sales/Assets (x)	0.7	0.5	0.5	0.6
Other long term liabilities	694	650	650	650	-	Interest cover (x)	NM	NM	NM	NM
Total liabilities	1,291	1,419	1,422	1,514	-	Operating leverage	140.6%	134.5%	117.1%	122.9%
Shareholders' equity	2,895	3,320	3,949	4,787	-	Revenue y/y Growth	12.1%	(3.9%)	16.5%	20.8%
Minority interests	-	-	-	-	-	EBITDA y/y Growth	17.0%	(3.8%)	17.4%	25.4%
Total liabilities & equity	4,185	4,739	5,371	6,301	-	Tax rate	19.2%	21.0%	21.5%	21.5%
BVPS	37.93	43.70	52.32	63.90	-	Adj. Net Income y/y Growth	22.3%	(8.7%)	15.4%	25.1%
y/y Growth	32.3%	15.2%	19.7%	22.1%	-	EPS y/y Growth	22.3%	(7.0%)	14.4%	22.8%
Net debt/(cash)	(1,116)	(893)	(1,434)	(2,234)	-	DPS y/y Growth	-	-	-	-
Cash flow from operating activities	963	735	757	1,033	-					
o/w Depreciation & amortization	33	45	35	42	-					
o/w Changes in working capital	5	(165)	(126)	(105)	-					
Cash flow from investing activities	(284)	(609)	(20)	(33)	-					
o/w Capital expenditure	(16)	(15)	(20)	(33)	-					
as % of sales	0.7%	0.7%	0.8%	1.0%	-					
Cash flow from financing activities	(218)	(346)	(200)	(200)	-					
o/w Dividends paid	-	-	-	-	-					
o/w Net debt issued/(repaid)	0	0	0	0	-					
Net change in cash	461	(220)	537	800	-					
Adj. Free cash flow to firm	906	692	727	991	-					
y/y Growth	98.6%	(23.6%)	5.1%	36.3%	-					

Source: Company reports and J.P. Morgan estimates.

Note: \$ in millions (except per-share data). Fiscal year ends Dec. o/w - out of which

**Analyst Certification:** The Research Analyst(s) denoted by an “AC” on the cover of this report certifies (or, where multiple Research Analysts are primarily responsible for this report, the Research Analyst denoted by an “AC” on the cover or within the document individually certifies, with respect to each security or issuer that the Research Analyst covers in this research) that: (1) all of the views expressed in this report accurately reflect the Research Analyst’s personal views about any and all of the subject securities or issuers; and (2) no part of any of the Research Analyst’s compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed by the Research Analyst(s) in this report. For all Korea-based Research Analysts listed on the front cover, if applicable, they also certify, as per KOFIA requirements, that the Research Analyst’s analysis was made in good faith and that the views reflect the Research Analyst’s own opinion, without undue influence or intervention.

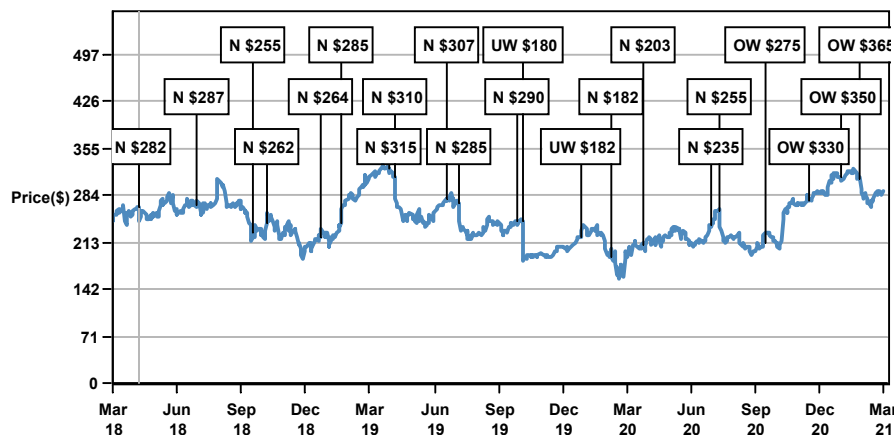
All authors named within this report are Research Analysts unless otherwise specified. In Europe, Sector Specialists (Sales and Trading) may be shown on this report as contacts but are not authors of the report or part of the Research Department.

## Important Disclosures

- **Market Maker/ Liquidity Provider:** J.P. Morgan is a market maker and/or liquidity provider in the financial instruments of/related to Arista.
- **Debt Position:** J.P. Morgan may hold a position in the debt securities of Arista, if any.

**Company-Specific Disclosures:** Important disclosures, including price charts and credit opinion history tables, are available for compendium reports and all J.P. Morgan–covered companies by visiting <https://www.jpmm.com/research/disclosures>, calling 1-800-477-0406, or e-mailing [research.disclosure.inquiries@jpmorgan.com](mailto:research.disclosure.inquiries@jpmorgan.com) with your request. J.P. Morgan’s Strategy, Technical, and Quantitative Research teams may screen companies not covered by J.P. Morgan. For important disclosures for these companies, please call 1-800-477-0406 or e-mail [research.disclosure.inquiries@jpmorgan.com](mailto:research.disclosure.inquiries@jpmorgan.com).

Arista (ANET, ANET US) Price Chart



Source: Bloomberg Finance L.P. and J.P. Morgan; price data adjusted for stock splits and dividends.  
Initiated coverage May 13, 2016. All share prices are as of market close on the previous business day.  
Break in coverage Oct 13, 2017 - May 03, 2018.

Date	Rating	Price (\$)	Price Target (\$)
03-May-18	N	265.46	282
23-Jul-18	N	268.84	287
11-Oct-18	N	225.79	255
02-Nov-18	N	240.96	262
18-Jan-19	N	221.03	264
15-Feb-19	N	240.78	285
22-Apr-19	N	323.38	315
03-May-19	N	310.85	310
16-Jul-19	N	277.64	307
02-Aug-19	N	272.22	285
22-Oct-19	N	243.84	290
01-Nov-19	UW	244.57	180
21-Jan-20	UW	221.87	182
04-Mar-20	N	191.75	182
19-Apr-20	N	210.02	203
24-Jul-20	N	239.30	235
04-Aug-20	N	260.51	255
08-Oct-20	OW	211.99	275
11-Dec-20	OW	276.37	330
25-Jan-21	OW	311.21	350
19-Feb-21	OW	308.85	365

The chart(s) show J.P. Morgan's continuing coverage of the stocks; the current analysts may or may not have covered it over the entire period.

J.P. Morgan ratings or designations: OW = Overweight, N= Neutral, UW = Underweight, NR = Not Rated

## Explanation of Equity Research Ratings, Designations and Analyst(s) Coverage Universe:

J.P. Morgan uses the following rating system: Overweight [Over the next six to twelve months, we expect this stock will outperform the average total return of the stocks in the analyst’s (or the analyst’s team’s) coverage universe.] Neutral [Over the next six to twelve months, we expect this stock will perform in line with the average total return of the stocks in the analyst’s (or the analyst’s team’s) coverage universe.] Underweight [Over the next six to twelve months, we expect this stock will underperform the average total return of

the stocks in the analyst's (or the analyst's team's) coverage universe.] Not Rated (NR): J.P. Morgan has removed the rating and, if applicable, the price target, for this stock because of either a lack of a sufficient fundamental basis or for legal, regulatory or policy reasons. The previous rating and, if applicable, the price target, no longer should be relied upon. An NR designation is not a recommendation or a rating. In our Asia (ex-Australia and ex-India) and U.K. small- and mid-cap equity research, each stock's expected total return is compared to the expected total return of a benchmark country market index, not to those analysts' coverage universe. If it does not appear in the Important Disclosures section of this report, the certifying analyst's coverage universe can be found on J.P. Morgan's research website, [www.jpmorganmarkets.com](http://www.jpmorganmarkets.com).

**Coverage Universe: Chatterjee, Samik:** Amphenol (APH), Apple (AAPL), Applied Optoelectronics (AAOI), Arista (ANET), Avaya (AVYA), Casa Systems (CASA), Ciena (CIEN), Cisco (CSCO), CommScope (COMM), Corning (GLW), Extreme Networks (EXTR), F5 Networks (FFIV), Fabrinet (FN), Harmonic (HLIT), II-VI (IIVI), Infinera (INFN), Juniper Networks (JNPR), Keysight Technologies (KEYS), Lumentum (LITE), National Instruments (NATI), NeoPhotonics (NPTN), Qualcomm (QCOM), Sensata (ST), TE Connectivity (TEL), Viavi Solutions (VIAV)

#### J.P. Morgan Equity Research Ratings Distribution, as of January 01, 2021

	Overweight (buy)	Neutral (hold)	Underweight (sell)
J.P. Morgan Global Equity Research Coverage*	48%	39%	13%
IB clients**	53%	49%	35%
JPMS Equity Research Coverage*	45%	40%	14%
IB clients**	78%	69%	51%

\*Please note that the percentages might not add to 100% because of rounding.

\*\*Percentage of subject companies within each of the "buy," "hold" and "sell" categories for which J.P. Morgan has provided investment banking services within the previous 12 months.

For purposes only of FINRA ratings distribution rules, our Overweight rating falls into a buy rating category; our Neutral rating falls into a hold rating category; and our Underweight rating falls into a sell rating category. Please note that stocks with an NR designation are not included in the table above. This information is current as of the end of the most recent calendar quarter.

**Equity Valuation and Risks:** For valuation methodology and risks associated with covered companies or price targets for covered companies, please see the most recent company-specific research report at <http://www.jpmorganmarkets.com>, contact the primary analyst or your J.P. Morgan representative, or email [research.disclosure.inquiries@jpmorgan.com](mailto:research.disclosure.inquiries@jpmorgan.com). For material information about the proprietary models used, please see the Summary of Financials in company-specific research reports and the Company Tearsheets, which are available to download on the company pages of our client website, <http://www.jpmorganmarkets.com>. This report also sets out within it the material underlying assumptions used.

**Analysts' Compensation:** The research analysts responsible for the preparation of this report receive compensation based upon various factors, including the quality and accuracy of research, client feedback, competitive factors, and overall firm revenues.

**Registration of non-US Analysts:** Unless otherwise noted, the non-US analysts listed on the front of this report are employees of non-US affiliates of J.P. Morgan Securities LLC, may not be registered as research analysts under FINRA rules, may not be associated persons of J.P. Morgan Securities LLC, and may not be subject to FINRA Rule 2241 or 2242 restrictions on communications with covered companies, public appearances, and trading securities held by a research analyst account.

#### Other Disclosures

J.P. Morgan is a marketing name for investment banking businesses of JPMorgan Chase & Co. and its subsidiaries and affiliates worldwide.

All research material made available to clients are simultaneously available on our client website, J.P. Morgan Markets, unless specifically permitted by relevant laws. Not all research content is redistributed, e-mailed or made available to third-party aggregators. For all research material available on a particular stock, please contact your sales representative.

Any long form nomenclature for references to China; Hong Kong; Taiwan; and Macau within this research material are Mainland China; Hong Kong SAR (China); Taiwan (China); and Macau SAR (China).

**Options and Futures related research:** If the information contained herein regards options- or futures-related research, such information is available only to persons who have received the proper options or futures risk disclosure documents. Please contact your J.P. Morgan Representative or visit <https://www.theocc.com/components/docs/riskstoc.pdf> for a copy of the Option Clearing Corporation's Characteristics and Risks of Standardized Options or [http://www.finra.org/sites/default/files/Security\\_Futures\\_Risk\\_Disclosure\\_Statement\\_2018.pdf](http://www.finra.org/sites/default/files/Security_Futures_Risk_Disclosure_Statement_2018.pdf) for a copy of the Security Futures Risk Disclosure Statement.

**Changes to Interbank Offered Rates (IBORs) and other benchmark rates:** Certain interest rate benchmarks are, or may in the future become, subject to ongoing international, national and other regulatory guidance, reform and proposals for reform. For more information, please consult: [https://www.jpmorgan.com/global/disclosures/interbank\\_offered\\_rates](https://www.jpmorgan.com/global/disclosures/interbank_offered_rates)

**Private Bank Clients:** Where you are receiving research as a client of the private banking businesses offered by JPMorgan Chase & Co. and its subsidiaries ("J.P. Morgan Private Bank"), research is provided to you by J.P. Morgan Private Bank and not by any other division of J.P. Morgan, including, but not limited to, the J.P. Morgan Corporate and Investment Bank and its Global Research division.

**Legal entity responsible for the production and distribution of research:** The legal entity identified below the name of the Reg AC Research Analyst who authored this material is the legal entity responsible for the production of this research. Where multiple Reg AC Research Analysts authored this material with different legal entities identified below their names, these legal entities are jointly responsible for the production of this research. Research Analysts from various J.P. Morgan affiliates may have contributed to the production of this material but may not be licensed to carry out regulated activities in your jurisdiction (and do not hold themselves out as being able to do so). Unless otherwise stated below, this material has been distributed by the legal entity responsible for production. If you have any queries, please contact the relevant Research Analyst in your jurisdiction or the entity in your jurisdiction that has distributed this research material.

**Legal Entities Disclosures and Country-/Region-Specific Disclosures:**

**Argentina:** JPMorgan Chase Bank N.A Sucursal Buenos Aires is regulated by Banco Central de la República Argentina ("BCRA"- Central Bank of Argentina) and Comisión Nacional de Valores ("CNV"- Argentinian Securities Commission) - ALYC y AN Integral N°51). **Australia:** J.P. Morgan Securities Australia Limited ("JPMSAL") (ABN 61 003 245 234/AFS Licence No: 238066) is regulated by the Australian Securities and Investments Commission and is a Market, Clearing and Settlement Participant of ASX Limited and CHIX. This material is issued and distributed in Australia by or on behalf of JPMSAL only to "wholesale clients" (as defined in section 761G of the Corporations Act 2001). A list of all financial products covered can be found by visiting <https://www.jpmm.com/research/disclosures>. J.P. Morgan seeks to cover companies of relevance to the domestic and international investor base across all Global Industry Classification Standard (GICS) sectors, as well as across a range of market capitalisation sizes. If applicable, in the course of conducting public side due diligence on the subject company(ies), the Research Analyst team may at times perform such diligence through corporate engagements such as site visits, discussions with company representatives, management presentations, etc. Research issued by JPMSAL has been prepared in accordance with J.P. Morgan Australia's Research Independence Policy which can be found at the following link: [J.P. Morgan Australia - Research Independence Policy](#). **Brazil:** Banco J.P. Morgan S.A. is regulated by the Comissão de Valores Mobiliários (CVM) and by the Central Bank of Brazil. Ombudsman J.P. Morgan: 0800-7700847 / [ouvidoria.jp.morgan@jpmorgan.com](mailto:ouvidoria.jp.morgan@jpmorgan.com). **Canada:** J.P. Morgan Securities Canada Inc. is a registered investment dealer, regulated by the Investment Industry Regulatory Organization of Canada and the Ontario Securities Commission and is the participating member on Canadian exchanges. This material is distributed in Canada by or on behalf of J.P.Morgan Securities Canada Inc. **Chile:** Inversiones J.P. Morgan Limitada is an unregulated entity incorporated in Chile. **China:** J.P. Morgan Securities (China) Company Limited has been approved by CSRC to conduct the securities investment consultancy business. **Dubai:** JPMorgan Chase Bank, N.A., Dubai Branch is regulated by the Dubai Financial Services Authority (DFSA) and its registered address is Dubai International Financial Centre - The Gate, West Wing, Level 3 and 9 PO Box 506551, Dubai, UAE. This material has been distributed to persons regarded as professional clients or market counterparties as defined under the DFSA rules. **European Economic Area (EEA):** Unless specified to the contrary, research is distributed in the EEA by J.P. Morgan AG ("JPM AG"), which is a member of the Frankfurt Stock Exchange, is authorised by the European Central Bank ("ECB") and is regulated by the Federal Financial Supervisory Authority (BaFin). JPM AG is a company incorporated in the Federal Republic of Germany with a registered office at Taunustor 1, 60310 Frankfurt am Main, the Federal Republic of Germany. The material has been distributed in the EEA to persons regarded as professional investors (or equivalent) pursuant to Art. 4 para. 1 no. 10 and Annex II of MiFID II and its respective implementation in their home jurisdictions ("EEA professional investors"). This material must not be acted on or relied on by persons who are not EEA professional investors. Any investment or investment activity to which this material relates is only available to EEA relevant persons and will be engaged in only with EEA relevant persons. **Hong Kong:** J.P. Morgan Securities (Asia Pacific) Limited (CE number AAJ321) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission in Hong Kong, and J.P. Morgan Broking (Hong Kong) Limited (CE number AAB027) is regulated by the Securities and Futures Commission in Hong Kong. JP Morgan Chase Bank, N.A., Hong Kong (CE Number AAL996) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission, is organized under the laws of the United States with limited liability. **India:** J.P. Morgan India Private Limited (Corporate Identity Number - U67120MH1992FTC068724), having its registered office at J.P. Morgan Tower, Off. C.S.T. Road, Kalina, Santacruz - East, Mumbai - 400098, is registered with the Securities and Exchange Board of India (SEBI) as a 'Research Analyst' having registration number INH000001873. J.P. Morgan India Private Limited is also registered with SEBI as a member of the National Stock Exchange of India Limited and the Bombay Stock Exchange Limited (SEBI Registration Number - INZ000239730) and as a Merchant Banker (SEBI Registration Number - MB/INM000002970). Telephone: 91-22-6157 3000, Facsimile: 91-22-6157 3990 and Website: [www.jpmmi.com](http://www.jpmmi.com). JPMorgan Chase Bank, N.A. - Mumbai Branch is licensed by the Reserve Bank of India (RBI) (Licence No. 53/ Licence No. BY.4/94; SEBI - IN/CUS/014/ CDSL : IN-DP-CDSL-444-2008/ IN-DP-NSDL-285-2008/ INBI00000984/ INE231311239) as a Scheduled Commercial Bank in India, which is its primary license allowing it to carry on Banking business in India and other activities, which a Bank branch in India are permitted to undertake. For non-local research material, this material is not distributed in India by J.P. Morgan India Private Limited. **Indonesia:** PT

J.P. Morgan Sekuritas Indonesia is a member of the Indonesia Stock Exchange and is regulated by the OJK a.k.a. BAPEPAM LK. **Korea:** J.P. Morgan Securities (Far East) Limited, Seoul Branch, is a member of the Korea Exchange (KRX). JPMorgan Chase Bank, N.A., Seoul Branch, is licensed as a branch office of foreign bank (JPMorgan Chase Bank, N.A.) in Korea. Both entities are regulated by the Financial Services Commission (FSC) and the Financial Supervisory Service (FSS). For non-macro research material, the material is distributed in Korea by or through J.P. Morgan Securities (Far East) Limited, Seoul Branch. **Japan:** JPMorgan Securities Japan Co., Ltd. and JPMorgan Chase Bank, N.A., Tokyo Branch are regulated by the Financial Services Agency in Japan. **Malaysia:** This material is issued and distributed in Malaysia by JPMorgan Securities (Malaysia) Sdn Bhd (18146-X), which is a Participating Organization of Bursa Malaysia Berhad and holds a Capital Markets Services License issued by the Securities Commission in Malaysia. **Mexico:** J.P. Morgan Casa de Bolsa, S.A. de C.V. and J.P. Morgan Grupo Financiero are members of the Mexican Stock Exchange and are authorized to act as a broker dealer by the National Banking and Securities Exchange Commission. **New Zealand:** This material is issued and distributed by JPMSAL in New Zealand only to "wholesale clients" (as defined in the Financial Advisers Act 2008). JPMSAL is registered as a Financial Service Provider under the Financial Service providers (Registration and Dispute Resolution) Act of 2008. **Pakistan:** J. P. Morgan Pakistan Broking (Pvt.) Ltd is a member of the Karachi Stock Exchange and regulated by the Securities and Exchange Commission of Pakistan. **Philippines:** J.P. Morgan Securities Philippines Inc. is a Trading Participant of the Philippine Stock Exchange and a member of the Securities Clearing Corporation of the Philippines and the Securities Investor Protection Fund. It is regulated by the Securities and Exchange Commission. **Russia:** CB J.P. Morgan Bank International LLC is regulated by the Central Bank of Russia. **Singapore:** This material is issued and distributed in Singapore by or through J.P. Morgan Securities Singapore Private Limited (JPMS) [MCI (P) 018/04/2020 and Co. Reg. No.: 199405335R], which is a member of the Singapore Exchange Securities Trading Limited, and/or JPMorgan Chase Bank, N.A., Singapore branch (JPMCB Singapore) [MCI (P) 052/09/2020], both of which are regulated by the Monetary Authority of Singapore. This material is issued and distributed in Singapore only to accredited investors, expert investors and institutional investors, as defined in Section 4A of the Securities and Futures Act, Cap. 289 (SFA). This material is not intended to be issued or distributed to any retail investors or any other investors that do not fall into the classes of "accredited investors," "expert investors" or "institutional investors," as defined under Section 4A of the SFA. Recipients of this material in Singapore are to contact JPMS or JPMCB Singapore in respect of any matters arising from, or in connection with, the material. As at the date of this material, JPMS is a designated market maker for certain structured warrants listed on the Singapore Exchange where the underlying securities may be the securities discussed in this material. Arising from its role as a designated market maker for such structured warrants, JPMS may conduct hedging activities in respect of such underlying securities and hold or have an interest in such underlying securities as a result. The updated list of structured warrants for which JPMS acts as designated market maker may be found on the website of the Singapore Exchange Limited: <http://www.sgx.com>. **South Africa:** J.P. Morgan Equities South Africa Proprietary Limited and JPMorgan Chase Bank, N.A., Johannesburg Branch are members of the Johannesburg Securities Exchange and are regulated by the Financial Services Board. **Taiwan:** J.P. Morgan Securities (Taiwan) Limited is a participant of the Taiwan Stock Exchange (company-type) and regulated by the Taiwan Securities and Futures Bureau. Material relating to equity securities is issued and distributed in Taiwan by J.P. Morgan Securities (Taiwan) Limited, subject to the license scope and the applicable laws and the regulations in Taiwan. According to Paragraph 2, Article 7-1 of Operational Regulations Governing Securities Firms Recommending Trades in Securities to Customers (as amended or supplemented) and/or other applicable laws or regulations, please note that the recipient of this material is not permitted to engage in any activities in connection with the material that may give rise to conflicts of interests, unless otherwise disclosed in the "Important Disclosures" in this material. **Thailand:** This material is issued and distributed in Thailand by JPMorgan Securities (Thailand) Ltd., which is a member of the Stock Exchange of Thailand and is regulated by the Ministry of Finance and the Securities and Exchange Commission, and its registered address is 3rd Floor, 20 North Sathorn Road, Silom, Bangrak, Bangkok 10500. **UK:** Unless specified to the contrary, research is distributed in the UK by J.P. Morgan Securities plc ("JPMS plc") which is a member of the London Stock Exchange and is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. JPMS plc is registered in England & Wales No. 2711006, Registered Office 25 Bank Street, London, E14 5JP. This material is directed in the UK only to: (a) persons having professional experience in matters relating to investments falling within article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) (Order) 2005 ("the FPO"); (b) persons outlined in article 49 of the FPO (high net worth companies, unincorporated associations or partnerships, the trustees of high value trusts, etc.); or (c) any persons to whom this communication may otherwise lawfully be made; all such persons being referred to as "UK relevant persons". This material must not be acted on or relied on by persons who are not UK relevant persons. Any investment or investment activity to which this material relates is only available to UK relevant persons and will be engaged in only with UK relevant persons. Research issued by JPMS plc has been prepared in accordance with JPMS plc's policy for prevention and avoidance of conflicts of interest related to the production of Research which can be found at the following link: [J.P. Morgan EMEA - Research Independence Policy](#). **U.S.:** J.P. Morgan Securities LLC ("JPMS") is a member of the NYSE, FINRA, SIPC, and the NFA. JPMorgan Chase Bank, N.A. is a member of the FDIC. Material published by non-U.S. affiliates is distributed in the U.S. by JPMS who accepts responsibility for its content.

**General:** Additional information is available upon request. The information in this material has been obtained from sources believed to be reliable. While all reasonable care has been taken to ensure that the facts stated in this material are accurate and that the forecasts, opinions and expectations contained herein are fair and reasonable, JPMorgan Chase & Co. or its affiliates and/or subsidiaries (collectively J.P. Morgan) make no representations or warranties whatsoever to the completeness or accuracy of the material provided, except with respect to any disclosures relative to J.P. Morgan and the Research Analyst's involvement with the issuer that is the subject of the material. Accordingly, no reliance should be placed on the accuracy, fairness or completeness of the information contained in this material. Any data discrepancies in this material could be the result of different calculations and/or adjustments. J.P. Morgan accepts no



liability whatsoever for any loss arising from any use of this material or its contents, and neither J.P. Morgan nor any of its respective directors, officers or employees, shall be in any way responsible for the contents hereof, apart from the liabilities and responsibilities that may be imposed on them by the relevant regulatory authority in the jurisdiction in question, or the regulatory regime thereunder. Opinions, forecasts or projections contained in this material represent J.P. Morgan's current opinions or judgment as of the date of the material only and are therefore subject to change without notice. Periodic updates may be provided on companies/industries based on company-specific developments or announcements, market conditions or any other publicly available information. There can be no assurance that future results or events will be consistent with any such opinions, forecasts or projections, which represent only one possible outcome. Furthermore, such opinions, forecasts or projections are subject to certain risks, uncertainties and assumptions that have not been verified, and future actual results or events could differ materially. The value of, or income from, any investments referred to in this material may fluctuate and/or be affected by changes in exchange rates. All pricing is indicative as of the close of market for the securities discussed, unless otherwise stated. Past performance is not indicative of future results. Accordingly, investors may receive back less than originally invested. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients. The recipients of this material must make their own independent decisions regarding any securities or financial instruments mentioned herein and should seek advice from such independent financial, legal, tax or other adviser as they deem necessary. J.P. Morgan may trade as a principal on the basis of the Research Analysts' views and research, and it may also engage in transactions for its own account or for its clients' accounts in a manner inconsistent with the views taken in this material, and J.P. Morgan is under no obligation to ensure that such other communication is brought to the attention of any recipient of this material. Others within J.P. Morgan, including Strategists, Sales staff and other Research Analysts, may take views that are inconsistent with those taken in this material. Employees of J.P. Morgan not involved in the preparation of this material may have investments in the securities (or derivatives of such securities) mentioned in this material and may trade them in ways different from those discussed in this material. This material is not an advertisement for or marketing of any issuer, its products or services, or its securities in any jurisdiction.

"Other Disclosures" last revised March 20, 2021.

---

**Copyright 2021 JPMorgan Chase & Co. All rights reserved. This material or any portion hereof may not be reprinted, sold or redistributed without the written consent of J.P. Morgan.**