

DIGITAL INFRASTRUCTURE: STATE OF THE MARKET

Gregory Williams, CFA

Senior Equity Research Analyst
TD Cowen
646 562 1367
gregory.williams@tdsecurities.com

Michael Elias

Senior Equity Research Analyst
TD Cowen
646 562 1358
michael.elias@tdsecurities.com



The TD Cowen Research Team



Gregory Williams, CFA

646 562 1367 | gregory.williams@tdsecurities.com

Gregory Williams is a Senior Analyst covering Communications Infrastructure and Cable, Satellite & Telecom Services. He joined TD Cowen in 2012 and has worked a combined 24 years including roles at AT&T, J.P. Morgan and Sidoti & Co.



Gregory Williams, CFA

Senior Equity Research Analyst - Cable, Satellite & Telecom Services; Communications Infrastructure...



Michael Elias

646 562 1358 | michael.elias@tdsecurities.com

Michael Elias is a Senior Analyst covering Communications Infrastructure and Content Delivery Networks. He joined TD Cowen in 2017 and received a B.S. in Industrial Engineering and Operations Research: Engineering Management Systems from Columbia University.

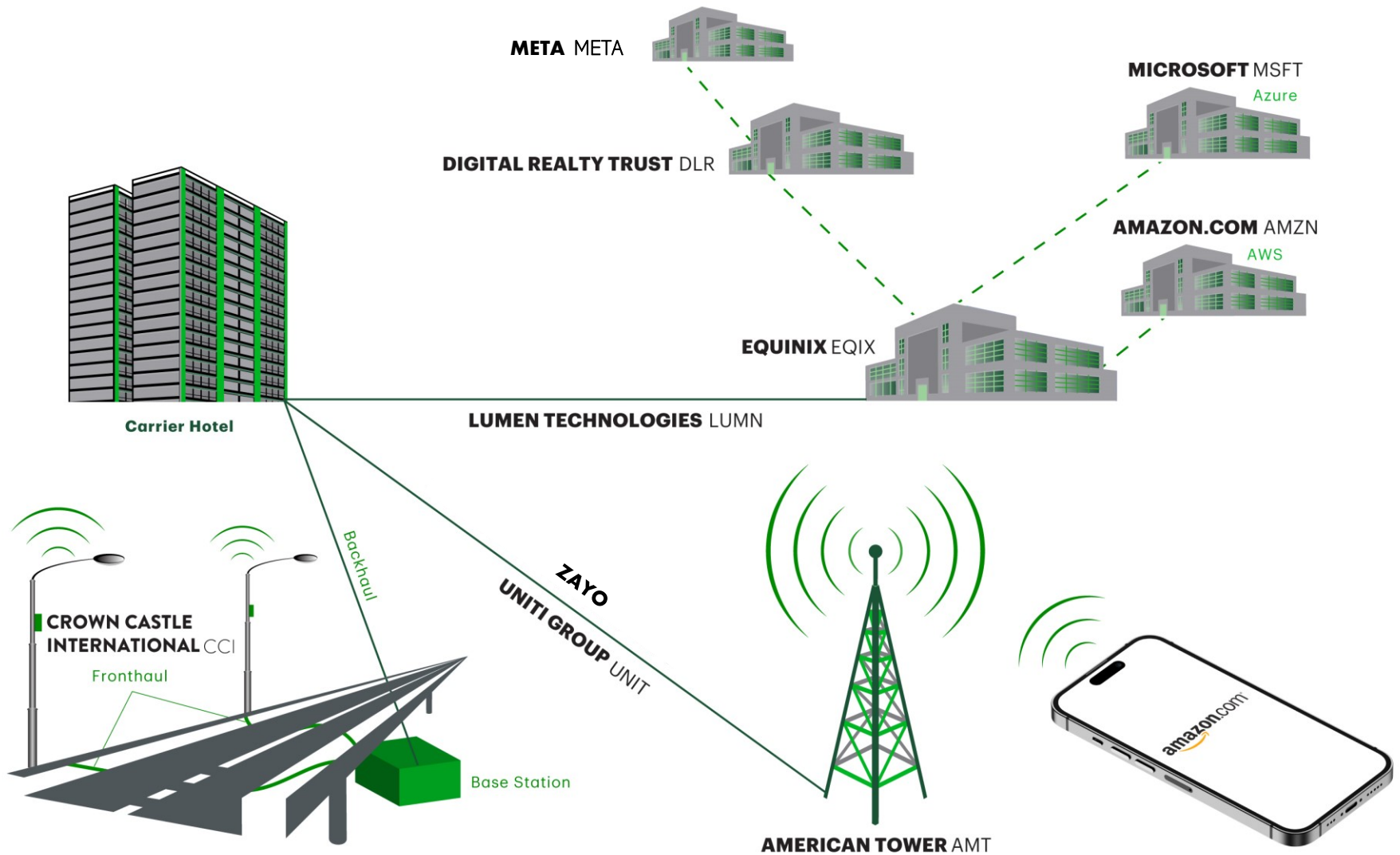


Michael Elias

Senior Equity Research Analyst at TD Cowen



Communications Infrastructure



Source: TD Cowen

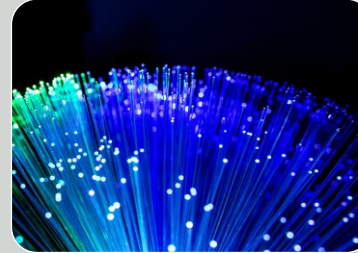
Overview Of Data Centers, Towers, Fiber, And Small Cells



Highly specialized and secured buildings that house a large number of (customer owned) servers and related network/IT equipment.



Physical structures where wireless service providers place antennas/equipment used to transmit signals to an end user's wireless device and the providers network.



Physical cables made of glass or plastic that are used to transmit data between two or more locations.



Small radio equipment and antennas that can be placed on structures such as streetlights, the sides of buildings, or poles in order to transmit wireless signals.

Types

Data Centers

- Retail/Enterprise, Wholesale/Hyperscale, Interconnect-oriented

Lease Duration

- 2-5 years for enterprises, +7 years for hyperscale

Escalators

- Often 2-3%, sometimes CPI-based

Churn

- ~4-10%

Notable Operators

- Aligned Data Centers, CoreSite, CyrusOne, DataBank, Digital Realty, Equinix, QTS, Switch, and Vantage Data Centers

Towers

- Monopole, Lattice, Guyed, Stealth

- 5-10 years with multiple renewal options

- Often 3%, sometimes CPI-based

- ~1-2%

- American Tower, Crown Castle, SBA Communications, and Vertical Bridge

Fiber

- Dark Fiber, Wavelengths, Dedicated Internet Access, Ethernet

- Varies

- Often 0%

- ~7-9%

- AT&T, Cogent, Lumen, Segra, Uniti, Verizon, Zayo

Small Cells

- Femtocells, Picocells and Microcells

- ~10 years

- Often ~1.5%

- ~1%

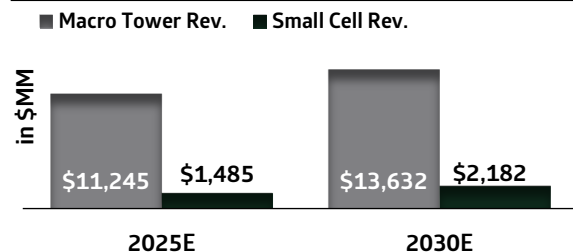
- Crown Castle, Extenet

Executive Overview

CRITICAL INFRASTRUCTURE FOR THE DIGITAL FUTURE

The emergence of Artificial Intelligence, along with continued cloud adoption, 5G build-out, and underlying data growth headline the very strong demand and mission critical nature of Communications Infrastructure services and assets.

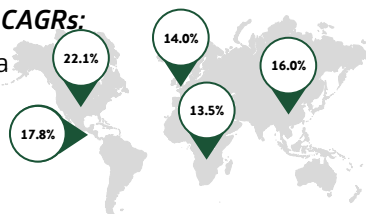
U.S. MACRO & SMALL CELL REV. FORECAST



GLOBAL DATA CENTER GROWTH

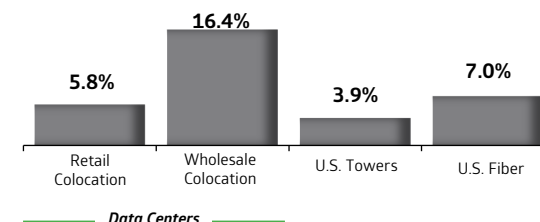
5 Year Revenue CAGRs:

- North America
- LatAm
- Europe
- MEA
- APAC



CAGR GROWTH

5 Year Revenue CAGRs:



EARLY INNINGS OF A GEN-AI SUPERCYCLE

Nvidia sees a trillion dollars worth of global data center infrastructure and hardware to be built over the next 4-5 years. The U.S. Gen-AI fiber opportunity could be \$40B+ TAM.

STEADY RISE IN MOBILE DEMAND

According to GSMA, Global Mobile Data Usage is expected to increase 3.1x from 2022 to 2028, driving \$1.5T of Global Mobile Capex between 2023 and 2030, of which ~92% will be spent on 5G.

THE CONTINUED RISE OF THE CLOUD

Revenue from the top eight Cloud Service Providers (CSPs) is expected to grow at a 23.4% 5-Year CAGR, reaching \$524B in revenue by 2028.

FIBER TO THE HOME: 2025 & 2026 ARE PEAK YEARS FOR DEPLOYMENTS

U.S. Fiber To The Home (FTTH) revenue is expected to grow at a 9.5% 5-Year CAGR thru 2029, while U.S. Cable Broadband revenue is expected to be roughly flat. We expect 2025 and 2026 FTTH deployments of 10MM+ years.

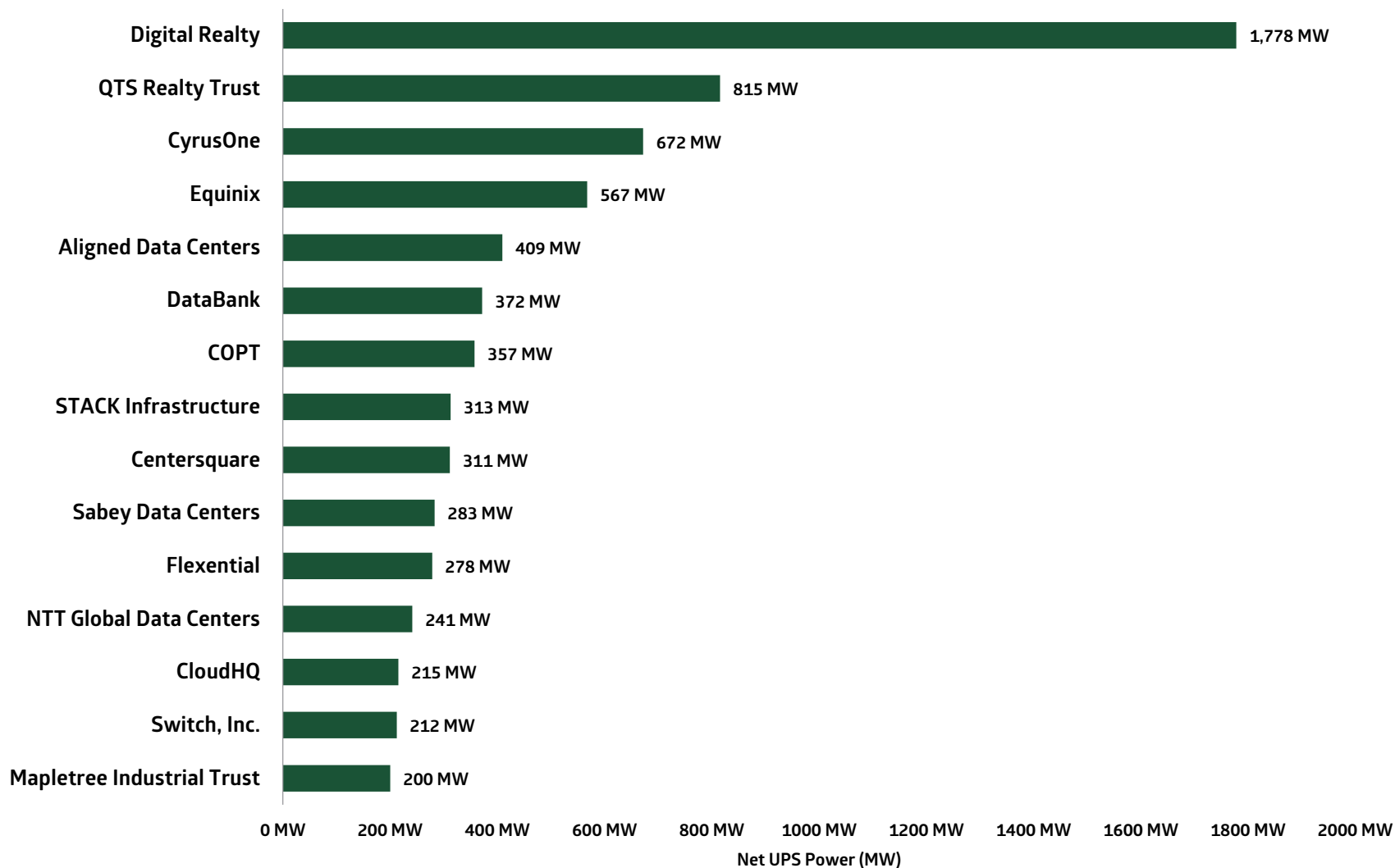
NOTABLE OPERATORS



Source: Structure Research, GSMA, Data Center Dynamics, 451 Research, TD Cowen

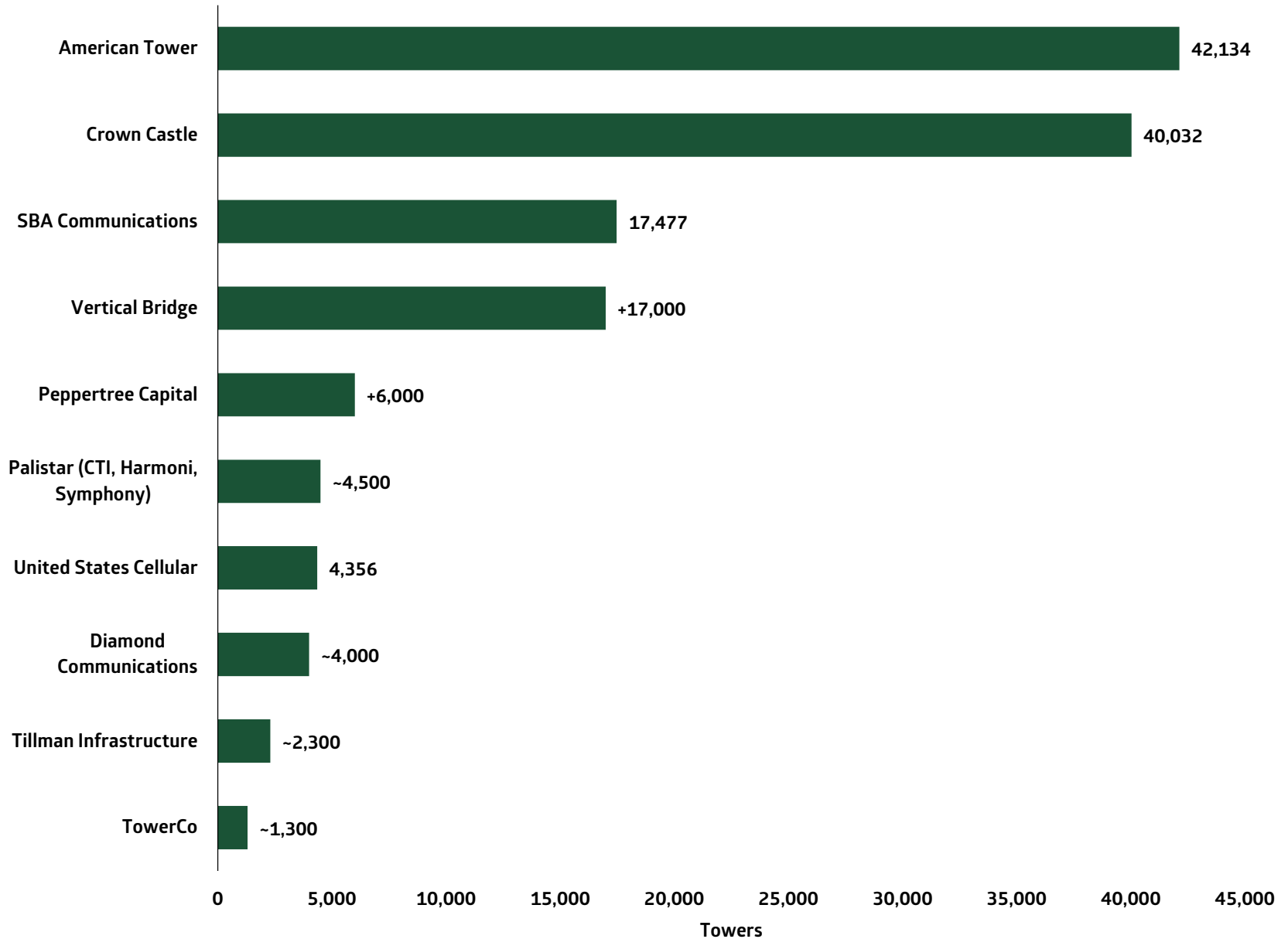
Who Are The Largest U.S. Data Center Operators?

United States of America (in MW)



Source: 451 Research (3Q24), TD Cowen

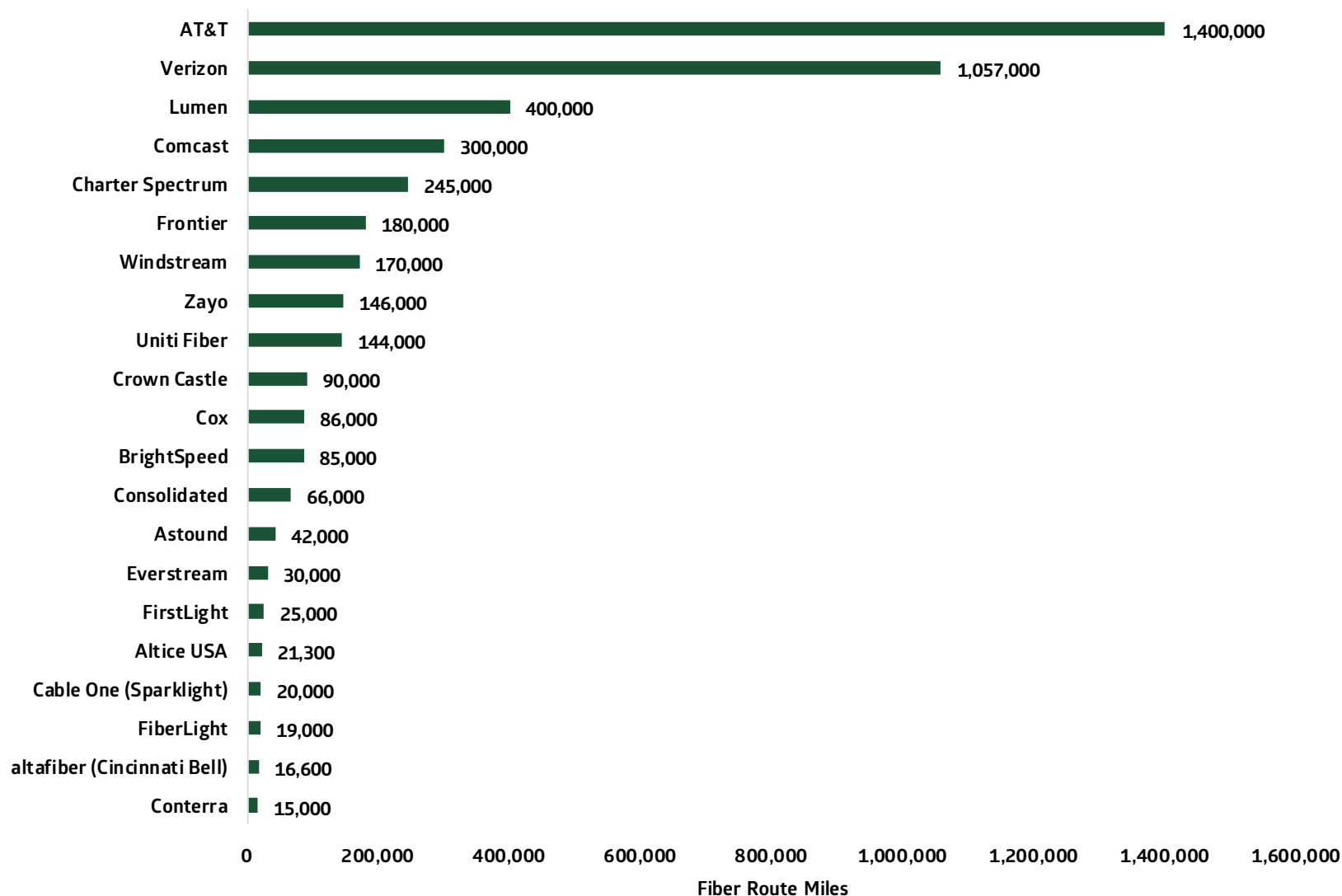
Who Are The Largest U.S. Tower Operators?



Source: Company filings, Public disclosures, TD Cowen

Who Are The Largest U.S. Fiber Operators?

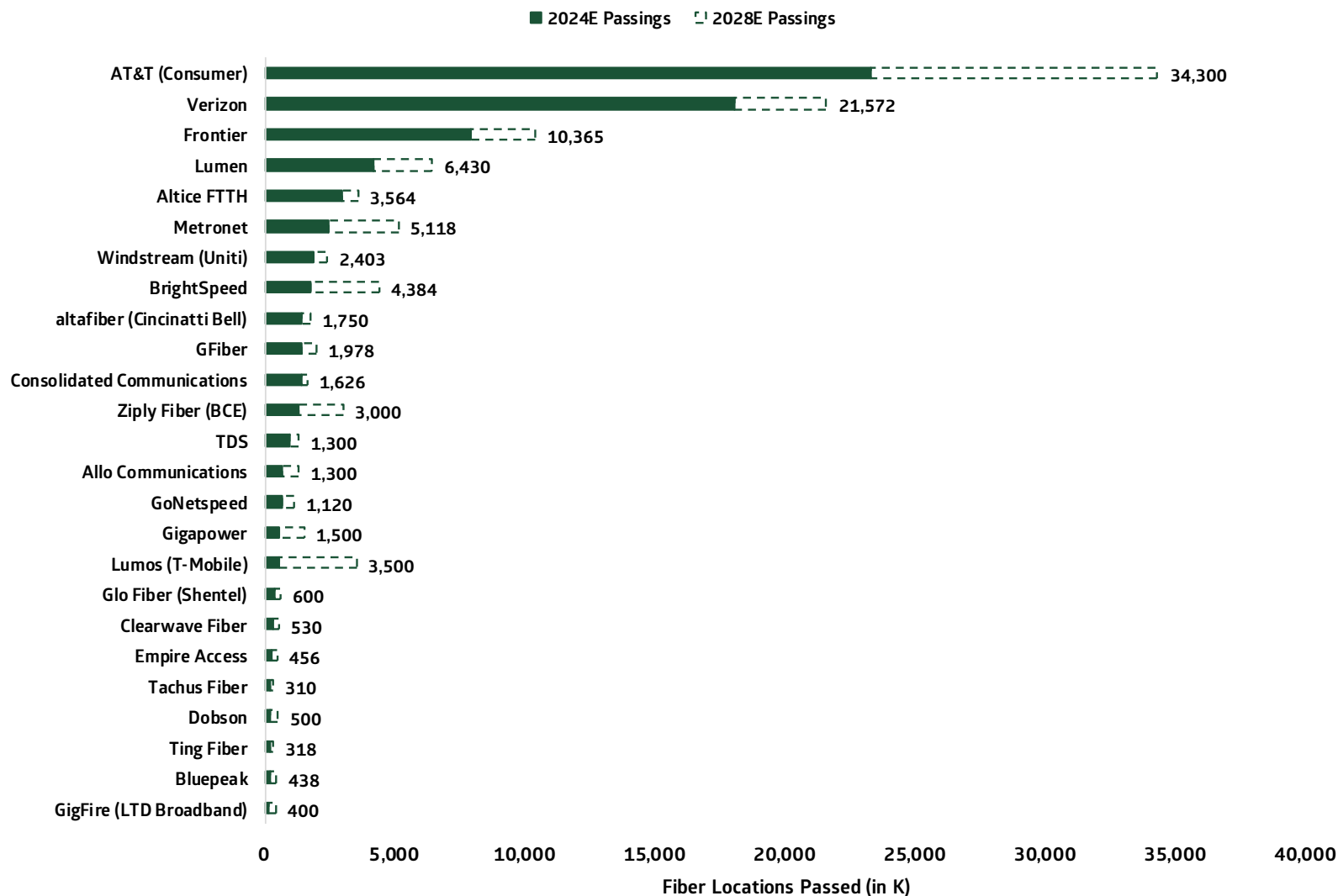
Largest U.S. Fiber Operators by Route Miles (Estimates)



Note: Some companies not shown due to lack of data
Source: Company Reports, Kagan, TD Cowen Estimates

Who Are The Largest U.S. FTTH Operators?

Largest U.S. FTTH Operators by Estimated Locations Passed (in K)

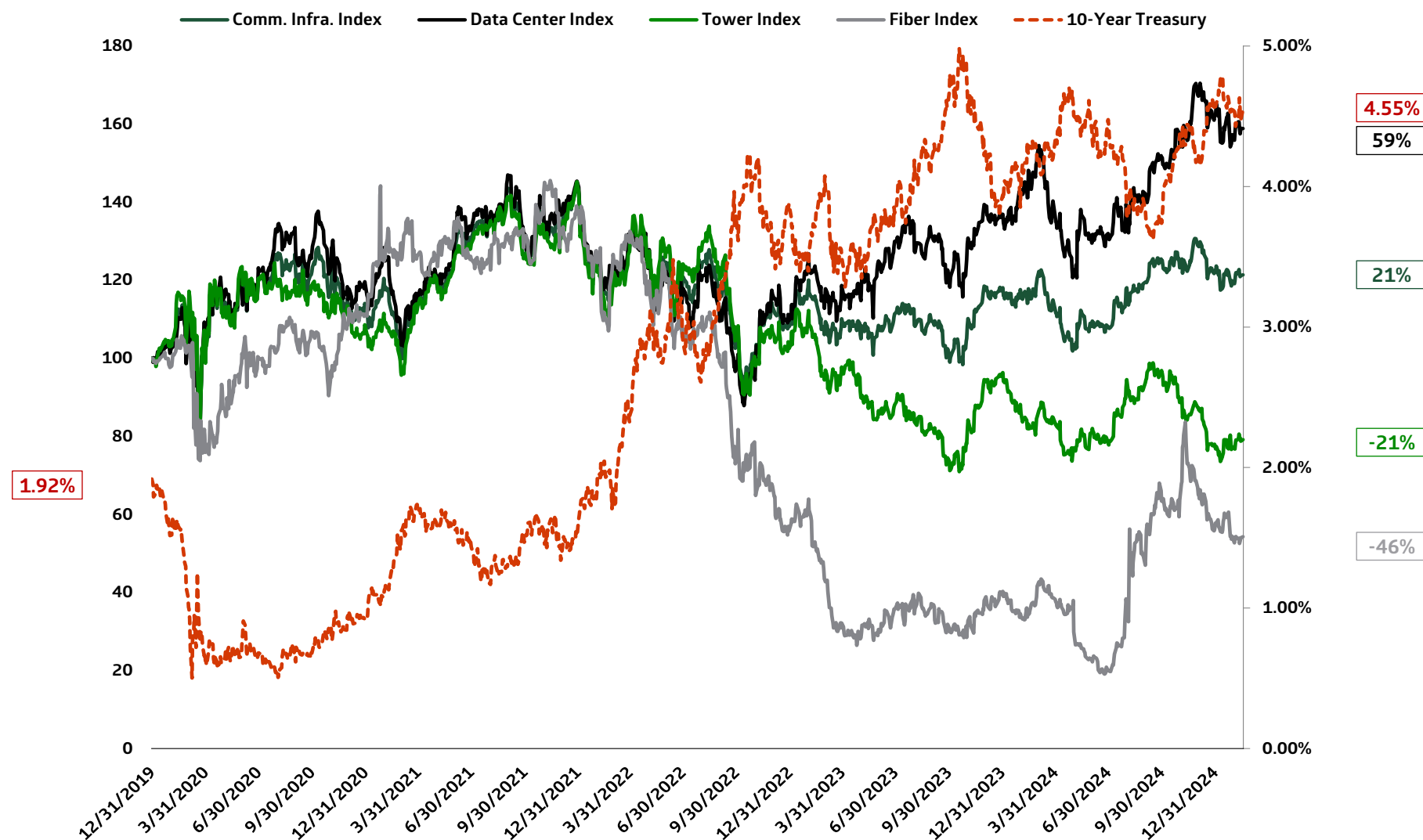


Note: Some companies not shown due to lack of data
Source: Company Reports, Kagan, TD Cowen Estimates



STOCK PERFORMANCE

Comm. Infra., Data Center, Tower, and Fiber Indexes: 5-Year Performance



Note: Indexed to 100 on 12/31/2019 (Price Index - Equal Weighted)

Comm. Infra. Index Stocks: AMT, CCI, CONE (until last trading day on 3/25/2022), CYXT (until last trading day on 6/15/2023), DLR, EQIX, LUMN, UNIT, QTS, SBAC, SWCH, ZAYO (until last trading days as public companies)

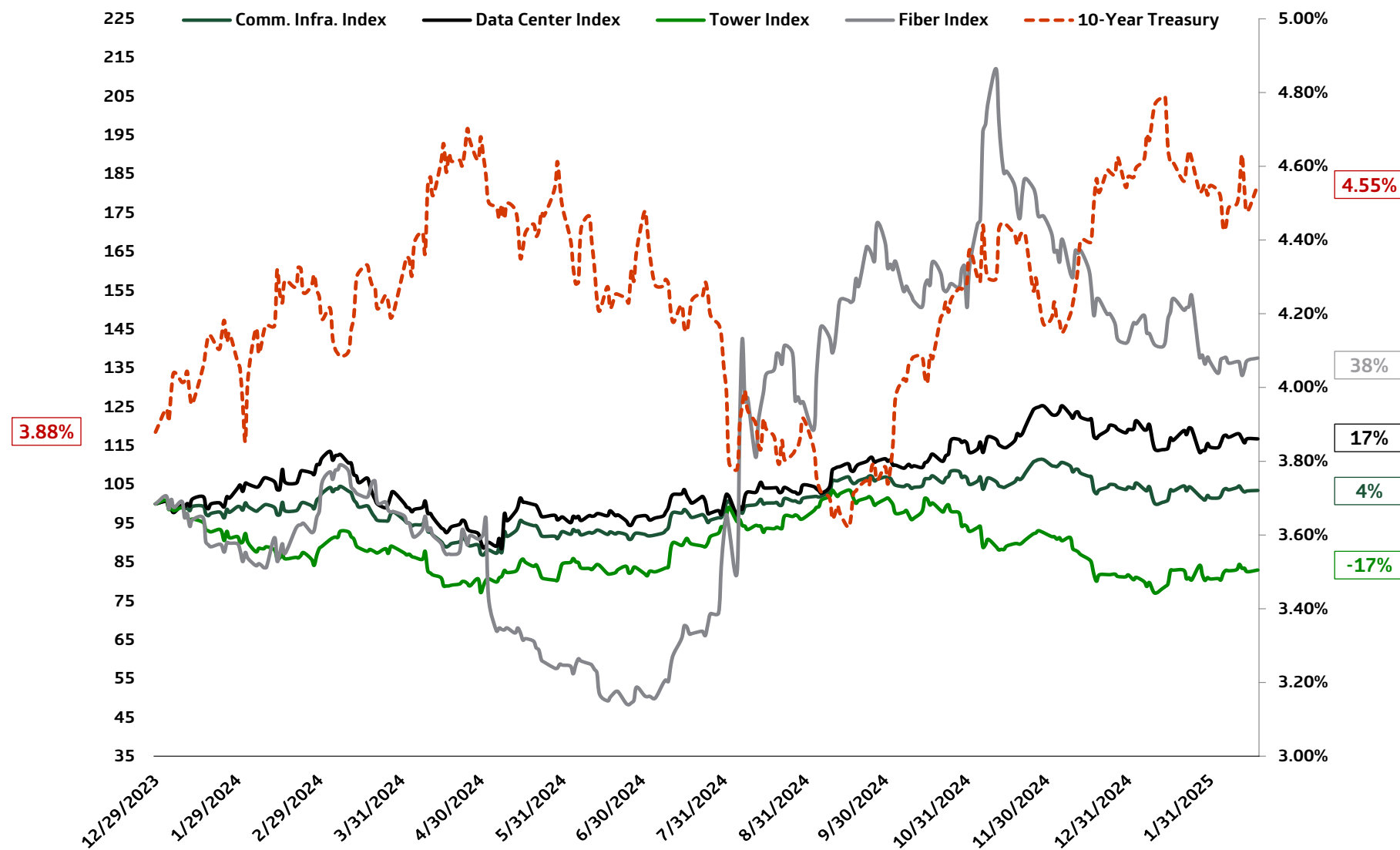
Data Center Index Stocks: CONE (until last trading day on 3/25/2022), CYXT (until last trading day on 6/15/2023), DLR, EQIX, INXN (until last trading day on 3/12/2020), QTS (until last trading day on 8/31/2021), SWCH (until last trading day on 12/6/2022)

Tower Index Stocks: AMT, CCI, SBAC

Fiber Index Stocks: LUMN, UNIT

Source: FactSet, TD Cowen; priced as of 2/19/2025

Comm. Infra., Data Center, Tower, and Fiber Indexes: 1-Year Performance



Note: Indexed to 100 on 12/31/2023 (Price Index - Equal Weighted)

Comm. Infra. Index Stocks: AMT, CCI, DLR, EQIX, LUMN, UNIT, SBAC

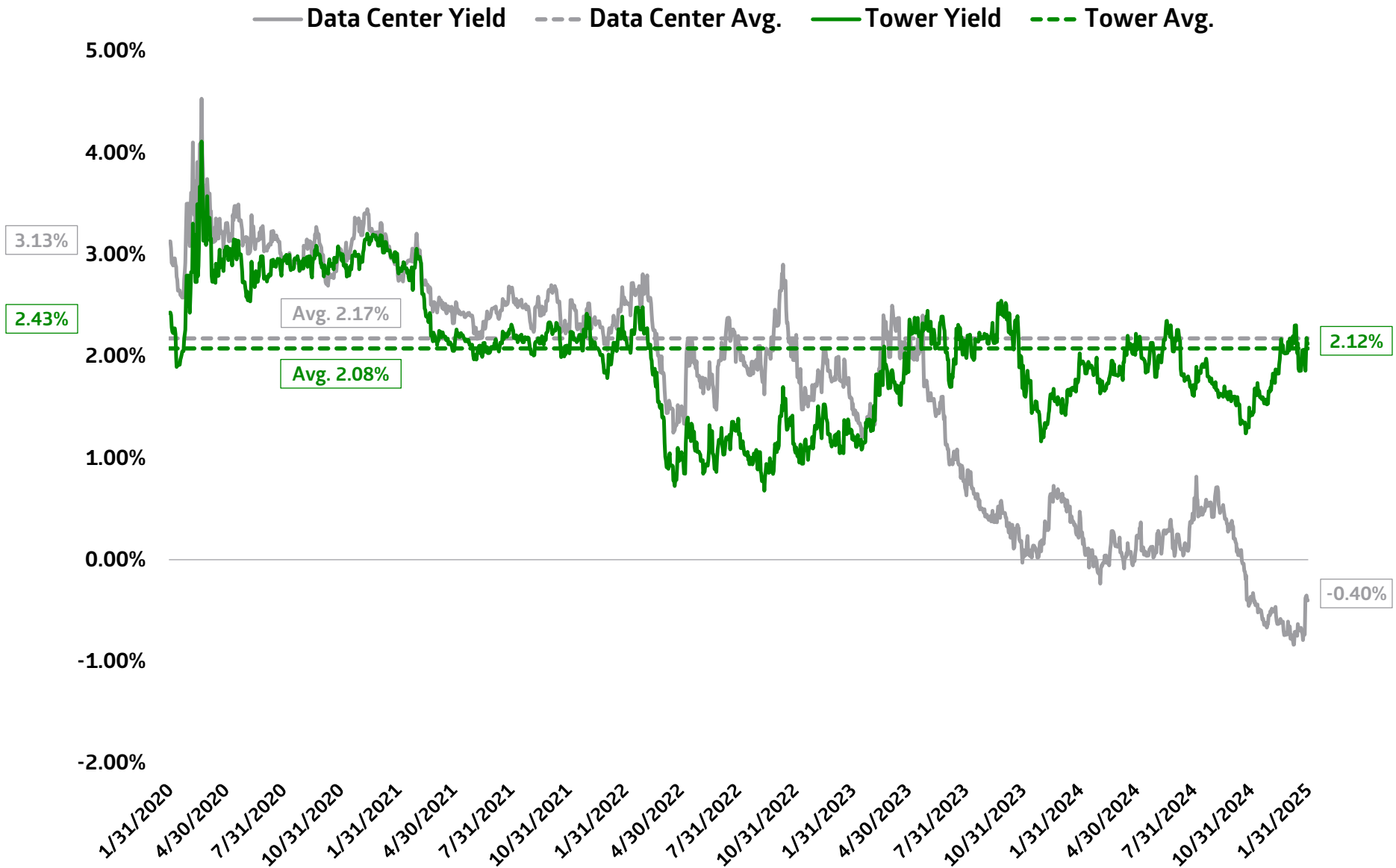
Data Center Index Stocks: DLR, EQIX

Tower Index Stocks: AMT, CCI, SBAC

Fiber Index Stocks: LUMN, UNIT

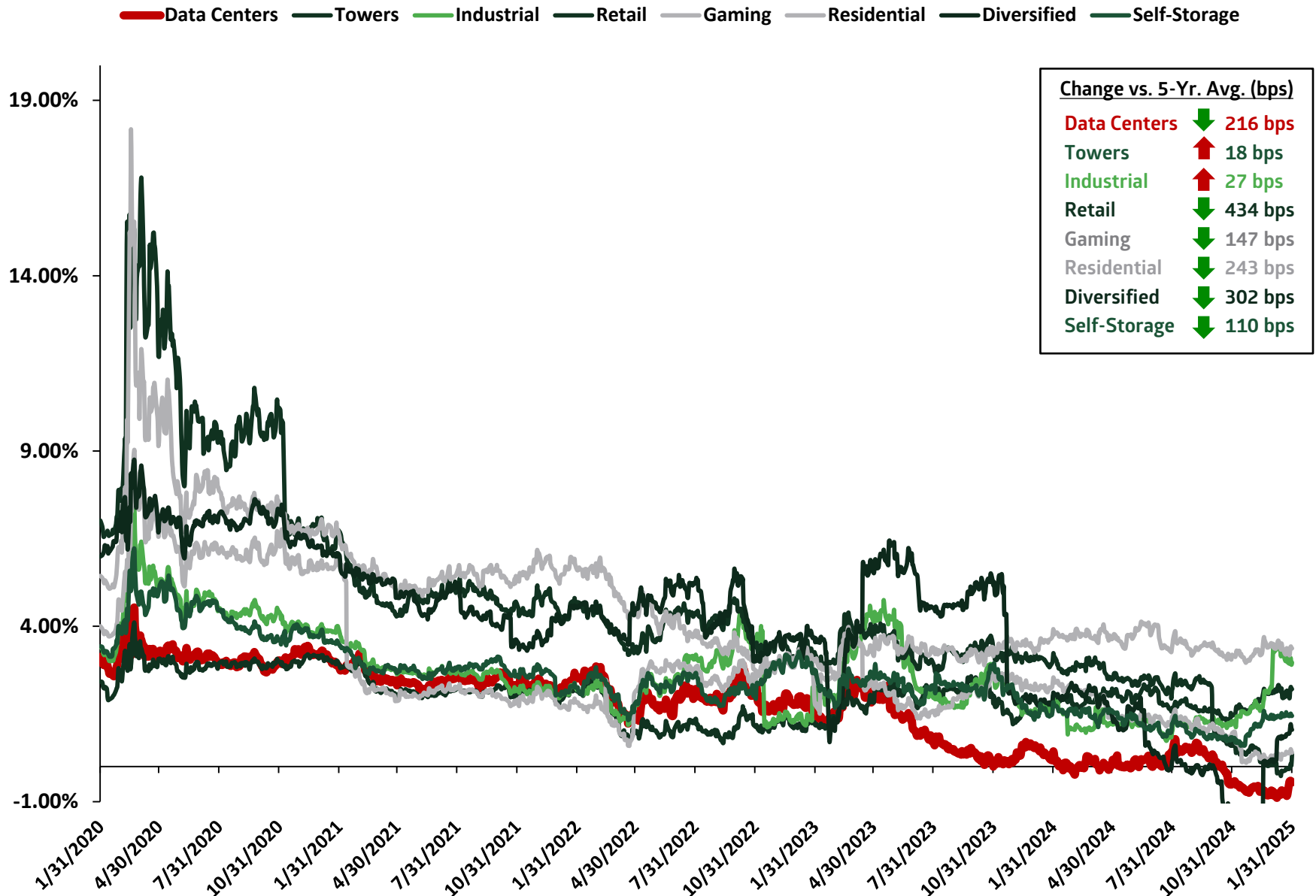
Source: FactSet, TD Cowen; priced as of 2/19/2025

Data Center & Tower AFFO Yield Spread Over The 10-Year Treasury



Data Center Index Stocks: DLR, EQIX
Tower Index Stocks: AMT, CCI, SBAC
Source: Bloomberg, TD Cowen

FTM AFFO Yield Spread Over The 10-Year Treasury Of Real Estate Sub-Sectors



Note: Indexes per NAREIT REITWatch ([LINK](#)), as of June 30, 2023

Source: Bloomberg, TD Cowen

Stock Performance Summary



Over the past five years, the Comm. Infra. sector generated returns of 21%, underperforming the broader market, but outperforming other REIT categories



The five-year Comm. Infra. performance is bifurcated:
Data Centers meaningfully outperformed while Towers/Fiber underperformed



Over the past year, the "higher for longer" interest rate concerns came true; Still, Data Centers and Fiber stocks performed well on AI, while Towers again underperformed



When adjusting for interest rates by looking at yield spreads, Data Center AFFO yield spreads have collapsed and are now BELOW Treasury rate yields for the first time in history



Data Centers yield spreads remain the lowest among REITs subsectors



M&A

Notable Data Center M&A Over The Last Three Years

	24.5x	24.0x	28.0x	28.0x	29.0x	22.0x*	37.3x	32.0x
Target	 AIRTRUNK	 Structure DATA CENTERS	 VANTAGE DATA CENTERS	 COMPASS datacenters	 Data4 SMART & SCALABLE DATA CENTERS	 DATA	 AIMS A TOWER company	 VIRTUS Data Centres
Buyer	 Blackstone  CPPIB INVESTMENT BOARD	 FENGATE	 DIGITALBRIDGE SILVER LAKE	 Brookfield  ONTARIO TEACHERS PENSION PLAN	 Brookfield	 Aligned Adaptive Data Centers	 DIGITALBRIDGE	 MACQUARIE
Type	Financial	Financial	Financial	Financial	Financial	Strategic	Financial	Financial
EV (\$mm)	\$16,100	\$1,300	\$9,200	\$5,500	\$3,800	\$2,000	\$700	\$4,000
Date	9/5/24	6/19/24	1/9/24	6/20/23	4/11/23	12/13/22	11/21/22	8/2/22
	29.0x	31.0x	23.0x	19.3x	30.0x	25.1x	29.5x	36.0x
Target	 DATABANK	 switch	 entel	 CyrusOne (Houston Assets)	 TERACO DATA ENVIRONMENT	 CyrusOne	 CORESITE	 Green Mountain
Buyer	 SwissLife  EDF Invest	 DIGITALBRIDGE	 EQUINIX	 DATABANK	 DIGITAL REALTY	 KKR	 AMERICAN TOWER	 AZRIEL GROUP
Type	Financial	Financial	Strategic	Strategic	Strategic	Financial	Strategic	Financial
EV (\$mm)	\$4,285	\$11,000	\$705	\$670	\$3,500	\$15,000	\$10,100	\$850
Date	6/17/22	5/11/22	3/18/22	1/19/22	1/3/22	11/15/21	11/15/21	7/19/21

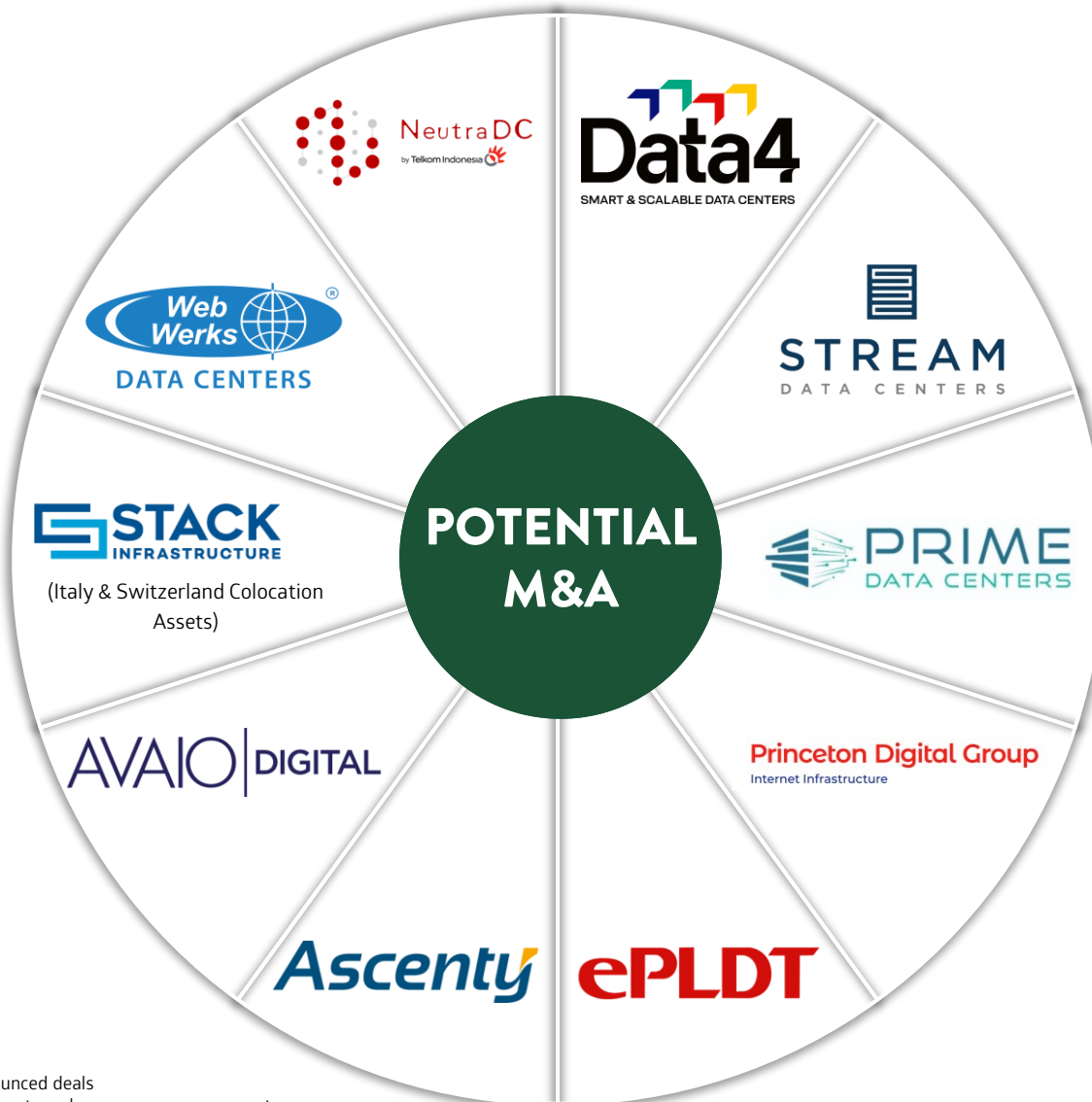
* Based on sale of 35% stake for \$1.5B

Source: Company announcements, TD Cowen

NOTE: Multiples on an LQA basis

NOTE: Avg. multiple of 28.0x based on all 16 transactions on this page

Data Center M&A Landscape – A Look Ahead



Note: Companies crossed out to reflect announced deals

Note: All companies listed based on press reports and company announcements

Source: Press reports, Company announcements, TD Cowen

Private Multiples Holding Up: Notable Tower M&A the Last Three Years

	27.6x	24.0x	7.0x	25.6x	27.3x	25.1x	28.2x	8.8x
Target	 SHENTEL®	 cellnex (Ireland)	 ATC INDIA	 VANTAGE TOWERS	 (Tower Assets)	 telenet	 Telia (Sweden Assets)	 MTN (South Africa Assets)
Buyer	 verticalbridge	 PHOENIX TOWER INTERNATIONAL	 Brookfield	 OAK™ GROUP HOLDINGS	 DIGITALBRIDGE Brookfield	 DIGITALBRIDGE	 Brookfield alecta	 IHS Towers of strength
Type	Strategic	Strategic	Strategic	Strategic	Financial	Financial	Financial	Strategic
EV (\$mm)	\$310	EUR 971	\$2,500	\$13,600	\$17,500	\$820	\$1,190	\$708
Date	3/1/24	3/4/24	1/5/24	12/14/22	7/14/22	3/25/22	1/27/22	11/17/21

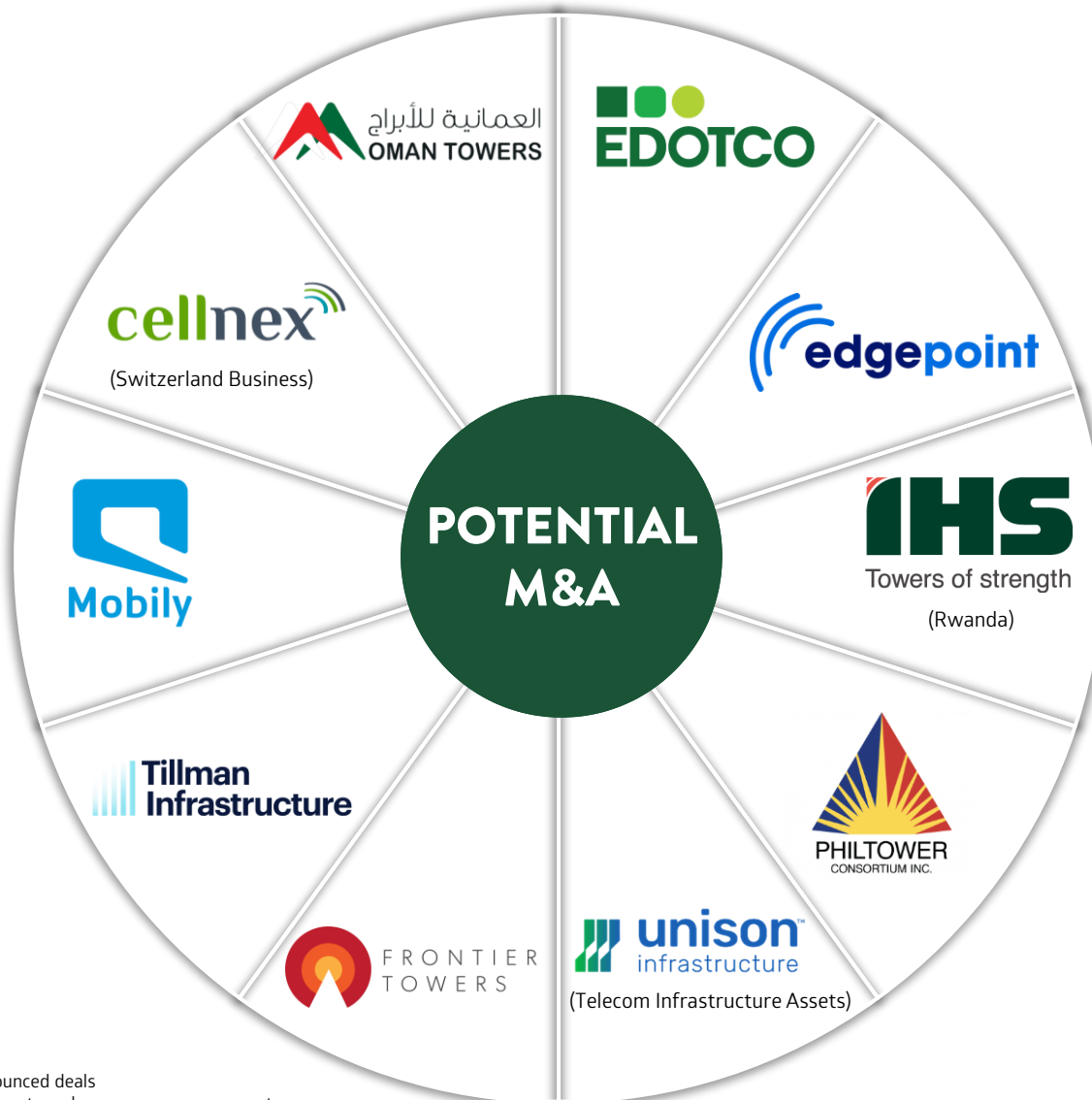
	8.8x	27.0x	26.5x	13.3x	24.6x	26.0x	11.8x	30.0x
Target	 STP	 Telia (Finland/Norway Assets)	 MELODY CAPITAL MANAGEMENT™	 Hivory	 PG&E (Tower Assets)	 TELXIUS	 cellnex	 InSite WIRELESS GROUP
Buyer	 PROTELINDO	 Brookfield	 Diamond Communications LLC	 cellnex	 SBA	 AMERICAN TOWER®	 cellnex	 AMERICAN TOWER®
Type	Strategic	Financial	Strategic	Strategic	Strategic	Strategic	Strategic	Strategic
EV (\$mm)	\$1,167	EUR 1,500	\$1,625	EUR 6,100	\$973	\$9,400	\$11,800	\$3,500
Date	10/1/21	7/1/21	5/12/21	2/3/21	2/2/21	1/13/21	11/12/20	11/5/20

*TCF Multiple

**Multiple based on completion of tower build agreement

Source: Company announcements, TD Cowen

Tower M&A Landscape – A Look Ahead



Note: Companies crossed out to reflect announced deals

Note: All companies listed based on press reports and company announcements

Source: Press reports, Company announcements, TD Cowen

Notable Fiber M&A Since 2021

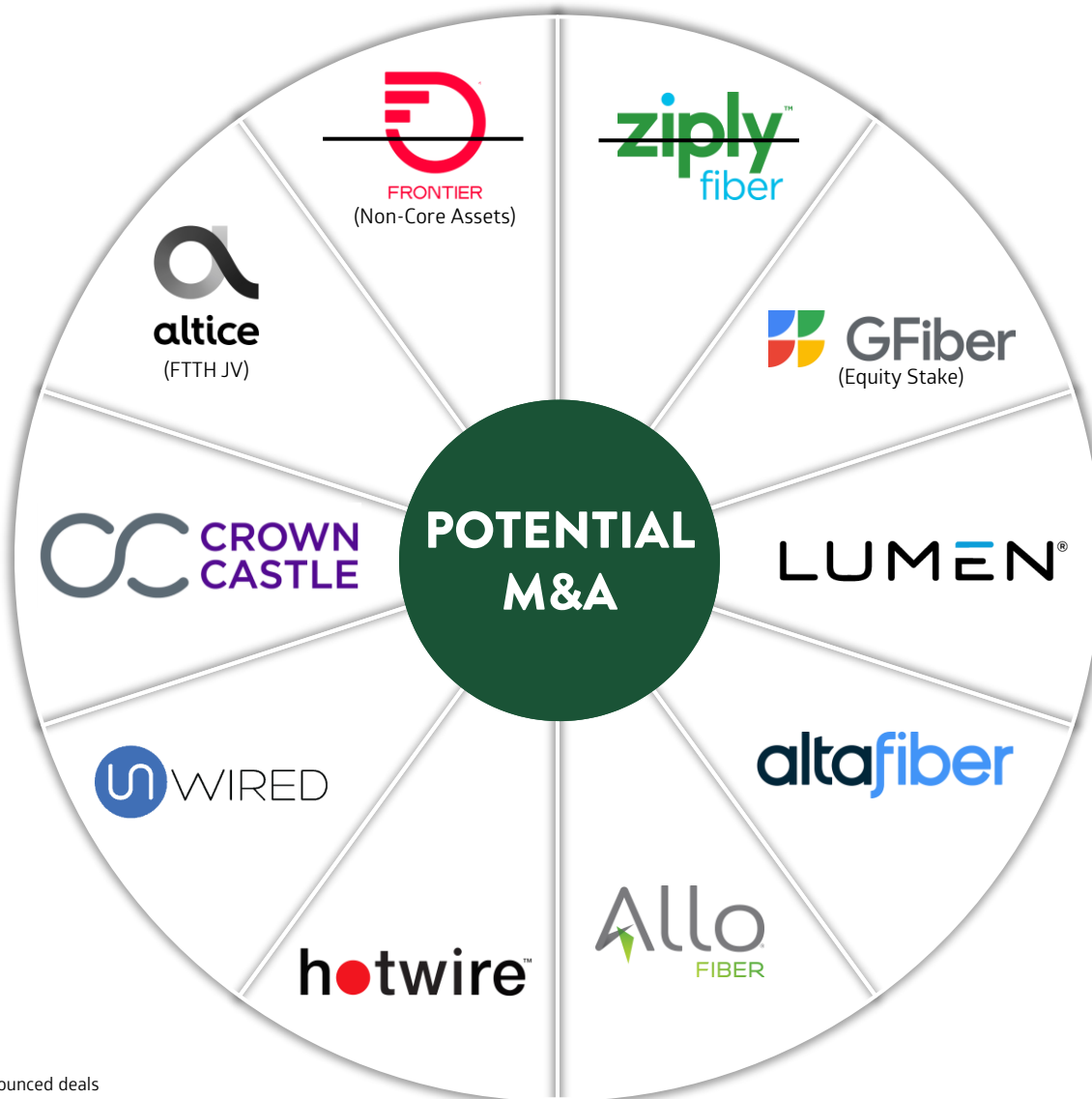
	16.3x	8.9x	>20.0x	5.3x	20.2x	9.6x	23.0x	11.0x
Target			 (JV w/ KKR)				 (joint control w/ GTCR)	 (EMEA Business)
Buyer								
Type	Strategic	Strategic	Strategic	Strategic	Strategic	Financial	Financial	Strategic
EV (\$mm)	\$5,036	\$20,000	\$9,800	~\$5,000*	\$385	\$3,100	\$1,300	\$1,800
Date	11/4/24	9/5/24	7/24/24	5/3/24	10/24/23	10/16/23	2/15/23	11/2/22
	22.0x	5.5x	11.0x	23.0x	17.1x	22.0x	24.1x	17.2x
Target		 (Certain Assets)	 (7MM Locations)	 (Certain Assets)	 (Minority Stake)			
Buyer	 (plus Consortium)	 (plus Consortium)			 			
Type	Financial	Hybrid	Financial	Strategic	Financial	Financial	Strategic	Strategic
EV (\$mm)	~\$1,000	\$762*	\$7,500	\$1,786	>\$2,000	~\$450	\$319	\$310
Date	6/30/22	1/1/22	8/3/21	6/30/21	4/21/21	4/16/21	3/9/21	3/1/21

* Implied total EV and multiple

** Combined two transactions for WOW assets

Source: Company announcements, TD Cowen

Fiber M&A Landscape – A Look Ahead



Note: Companies crossed out to reflect announced deals

Note: All companies listed based on press reports and company announcements

Source: Press reports, Company announcements, TD Cowen

M&A Summary



We had another slow M&A year in the Data Center and Tower Space; Interest Rates remained "higher for longer"; Focus on AI organic deployments



We saw an uptick in FTTH M&A as the "wireless/wireline" convergence frenzy has begun; We expect regional FTTH roll-ups, then the Big 3 to "roll up the roll-ups"



The Script Has Flipped...
Public market valuations for data centers now exceed private market M&A multiples



Public Data Centers: Expect more recycling of capital; Potential IPO's late-2026/2027
Public Towers may be more hesitant on international M&A

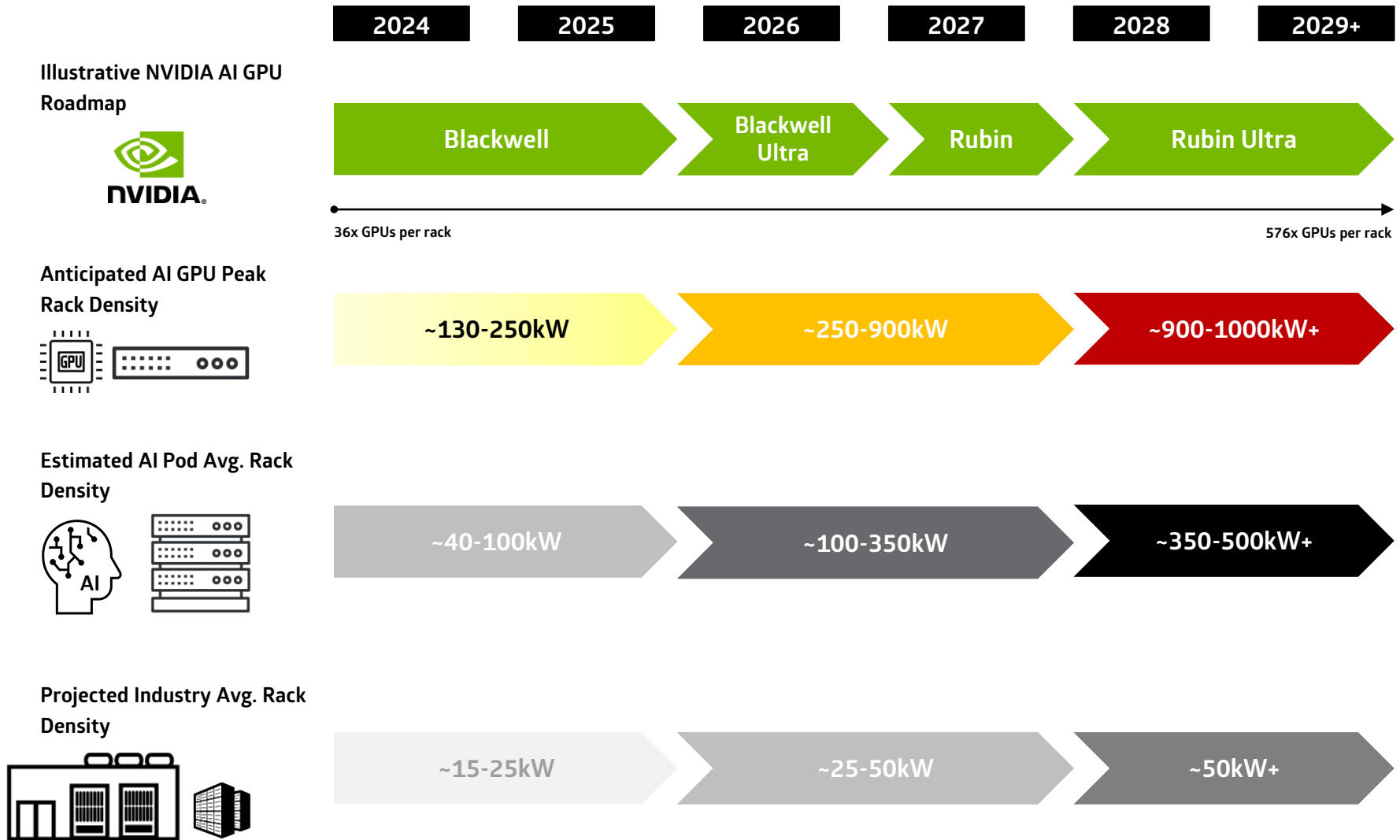


As interest rates have stabilized with more visibility, we should expect an uptick in M&A cross Digital Infra assets; Not all FTTH assets will get Zipy multiples



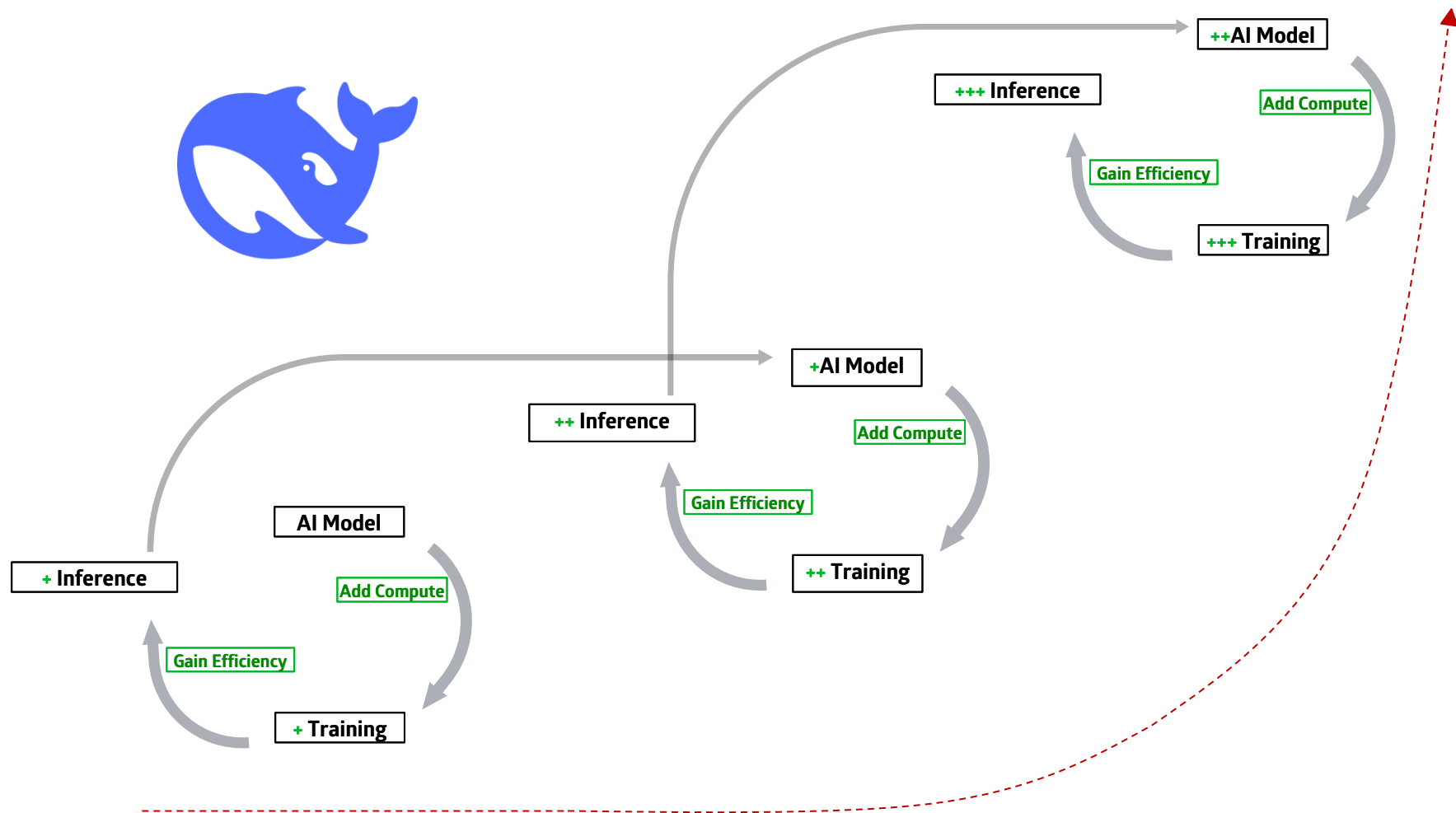
KEY TRENDS

1. GPU Development Driving Higher Densities And A Data Center Evolution



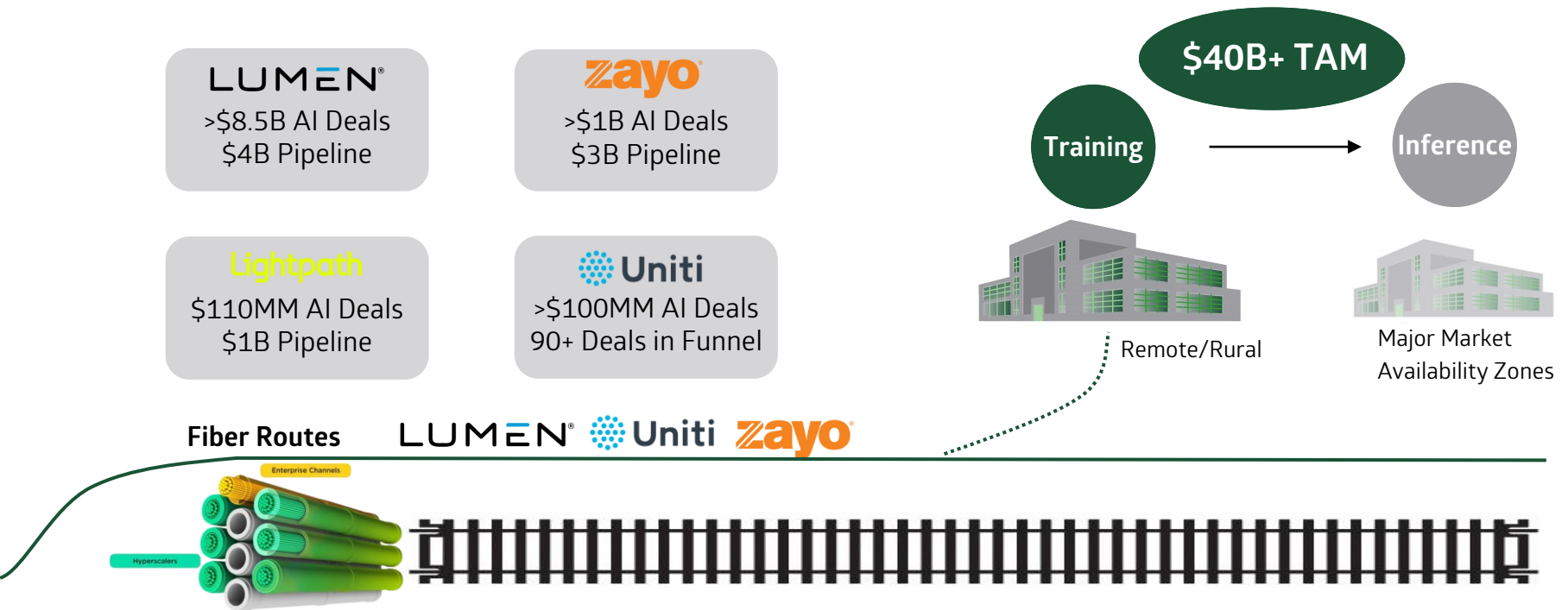
Source: Vertiv 2024 Investor Presentation, TD Cowen

2. DeepSeek and Disruptive "Efficiency Shocks" – Less is More



- **Jevons Paradox** – efficiency increases demand
- The democratization of AI will increase the TAM
- FiberCo's learned their boom/bust lessons, more disciplined now, pricing is an output
- Hot water may win or lose, cold water may win or lose – the plumbing always wins

3. The Fiber AI Frenzy: \$40B+ Market Opportunity; Focus on Attractive Yields



Flashy Contract Values, Little Outer-Year Cash Stream – Focus on Yields

A large portion going to upfront funding to build new networks to data centers (high upfront capex)

Low monthly recurring revenue (MRR) and cash EBITDA in outer years, but profit on upfront cash to drive HSD/LDD Yields



Capital Markets Opening Up Favorably for Fiber

Uniti and Zayo ABS success (oversubscription, leverage, low cost of debt) show capital is also flowing into the fiber world

Expect more ABS deals and more favorable capital markets in 2025



Inference is Next – Large Opportunity, Too Early to Call

The Inference Phase, when enterprises will start to consume real-time data. Too early to call, but

This is when we will see a lot more IP and wavelength consumption

4. AI Data Center Demand Driving Power Crunches Across U.S. Markets

ILLUSTRATION OF INCREMENTAL POWER DEMAND FOR DATA CENTERS VS. NYC POWER DEMAND



New York City uses ~5.5GW of power a year



Based on our channel checks alone, 5.8GW of new U.S. data center leasing with third-party operators was signed in the last year. Most of this leasing is geared towards AI.

Market	Market Share by Net UPS Power	Months	Month-Year
Pittsburgh, PA	0.3%	36	Jan-28
Chicago, IL	7.7%	36	Jan-28
Houston, TX	1.7%	36	Jan-28
Dallas, TX	6.6%	36	Jan-28
Cleveland, OH	0.5%	36	Jan-28
NYC Metro	5.7%	42	Jul-28
San Antonio, TX	0.7%	42	Jul-28
Austin, TX	0.9%	42	Jul-28
Minneapolis, MN	0.7%	42	Jul-28
Salt Lake City, UT	1.9%	42	Jul-28
Northern Virginia	29.2%	42	Jul-28
Las Vegas, NV	1.3%	42	Jul-28
Raleigh/Durham, NC	0.3%	48	Dec-28
Seattle, WA	1.8%	48	Dec-28
Central Washington State	2.0%	48	Dec-28
Nashville, TN	0.3%	48	Dec-28
Phoenix, AZ	5.3%	60	Dec-29
Atlanta, GA	3.3%	72	Dec-30
Portland, OR	2.2%	72	Dec-30
Sacramento, CA	1.1%	72	Dec-30
Silicon Valley, CA	7.2%	72	Dec-30
Columbus, OH	0.8%	84	Dec-31

PROPRIETARY ELECTRICITY CAPACITY RUNWAY ANALYSIS OF FOUR LARGE U.S. MARKETS



NORTHERN VIRGINIA

The worlds largest data center market will run out of reliability-rated power in winter 2027



NEW ALBANY, OHIO

Emerging as an overflow market for the hyperscalers following power constraints elsewhere, it will run out of reliability-rated power in summer 2028



SILICON VALLEY, CALIFORNIA

The third largest data center market in the U.S. will run out of reliability-rated power in summer 2034



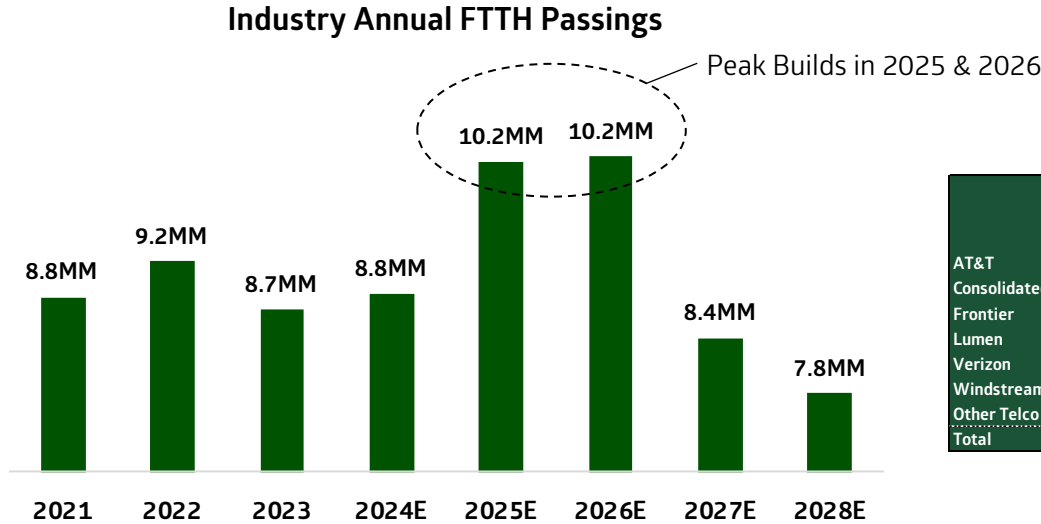
DALLAS, TEXAS

The fifth largest data center market in the U.S., it has already exceeded supply relative to levels that would ensure adequate system reliability

Source: TD Cowen Ahead of the Curve Report – "Data Centers, Generative AI & Power Constraints: The Path Forward" ([Link](#))

5. FTTH: Peak Deployment Years, The Era of "Convergence", Expect M&A

Builds



Cable Overlap Will Continue to Increase

	Cable Exposure to Fiber Telco Homes 2026E					
	Altice	Cable One	Charter	Comcast	Cox	Other / None
AT&T	17%	29%	24%	20%	18%	19%
Consolidated	1%	0%	1%	1%	1%	2%
Frontier	4%	5%	8%	8%	3%	3%
Lumen	2%	7%	2%	9%	7%	5%
Verizon	34%	0%	13%	16%	10%	5%
Windstream	1%	2%	2%	0%	1%	9%
Other Telco	9%	7%	10%	8%	23%	5%
Total	67%	50%	60%	63%	63%	49%

T/TMUS/VZ Headed Down the Convergence Path:

AT&T mentioned convergence 26 times on its 2Q-3Q24 earnings calls.

Verizon validating the strategy with the Frontier acquisition.

T-Mobile less committed but has \$20B of M&A dry powder if necessary.

M&A



Follow the Leader:

The other carriers must reluctantly follow AT&T (buy) build, and/or open access).

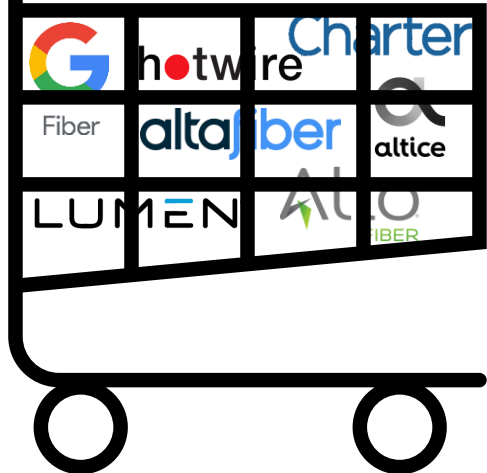
Expect fiber roll-ups to commence. Big 3 may roll up the roll-ups.

Unleashing of Demand in the Trump Era:

More favorable M&A regulatory environment under Trump.

Providers may be overly optimistic on multiples (depends on pen curve & balance sheet).

Who's in Play?



6. BEAD – Fluid Political Situation but Should Proceed with Modest Changes

\$42.5B

**8.5MM Unserved
Locations**

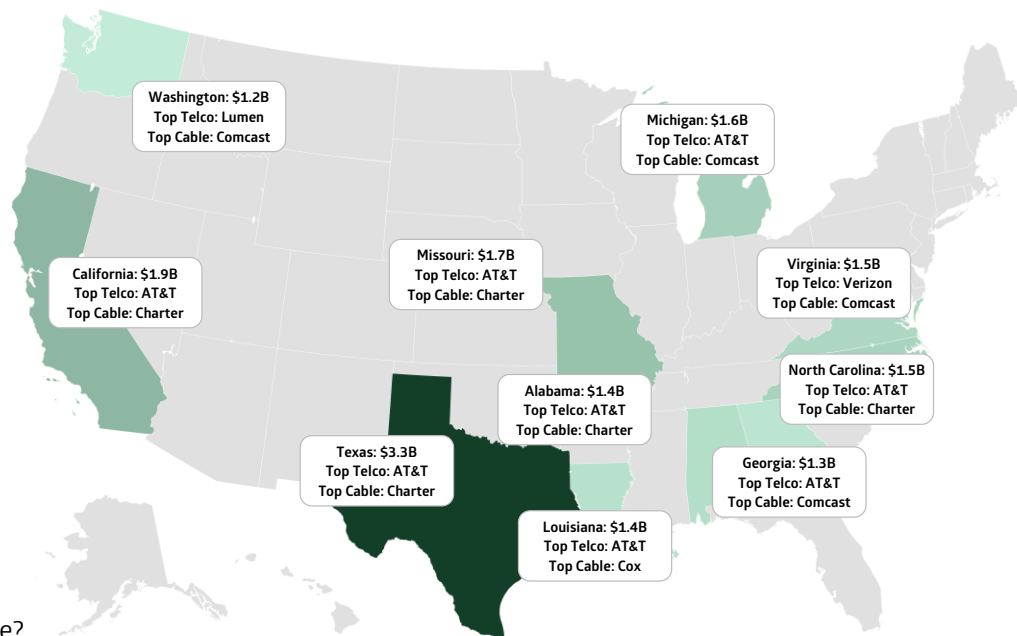
Key Risks and Uncertainties

- ? GOP removes fiber-first guideline to encourage Starlink and FWA participation? New NTIA boss seems to agree?
- ? Executive Orders: Unleashing American Energy & Regulatory Freeze?
- ? GOP hits the breaks on BEAD altogether?



Impacts Likely Minimal

- ! We don't expect Trump to "pull the plug" but potentially some delays as guidelines are introduced
- ! Starlink's BEAD opportunity is relatively small; fears may be overblown
- ! Executive Orders can't/won't prevent BEAD; Need an act of Congress
- ! States are already far into the process (3 states already announced allocations); lots of the funds are going to red states
- ! Potentially relaxed regulations and reporting rules



**States Unlock
Allocations**

**ISPs Receive
Distributions**

**Boots on the
Ground**

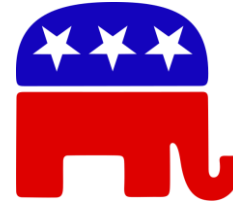
Louisiana, Delaware,
and Nevada award
funding to ISPs

Early-2025

2025

2025+

7. Trump and Carr FCC Policies – More Favorable Regulatory Environment



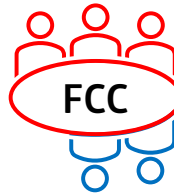
Pent-Up M&A

More favorable regulatory environment could drive incremental pent-up M&A



FCC/Net Neutrality

FCC likely to quickly get 3-2 republican majority; Net Neutrality already shut down in courts

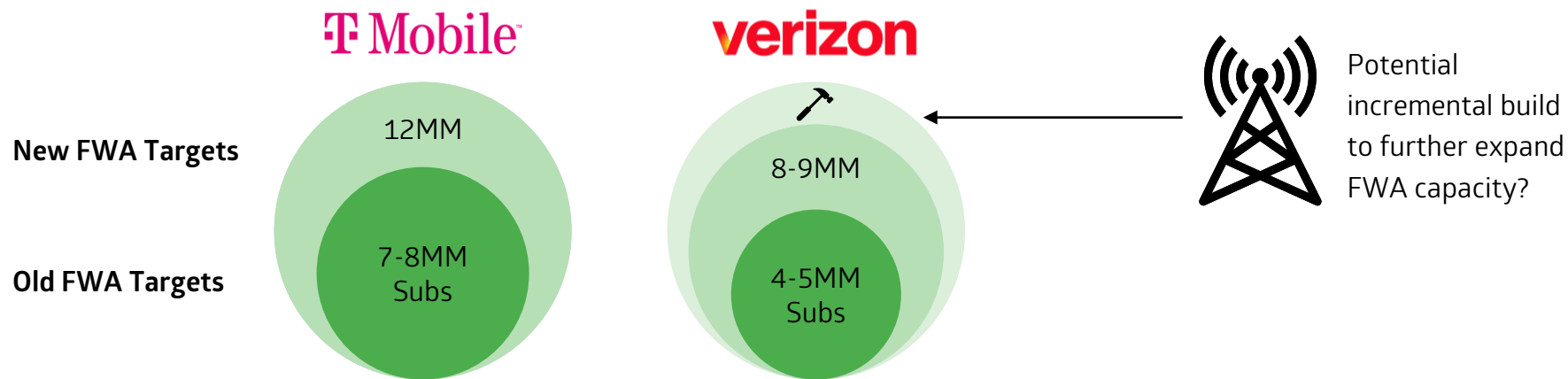


Tax Policies

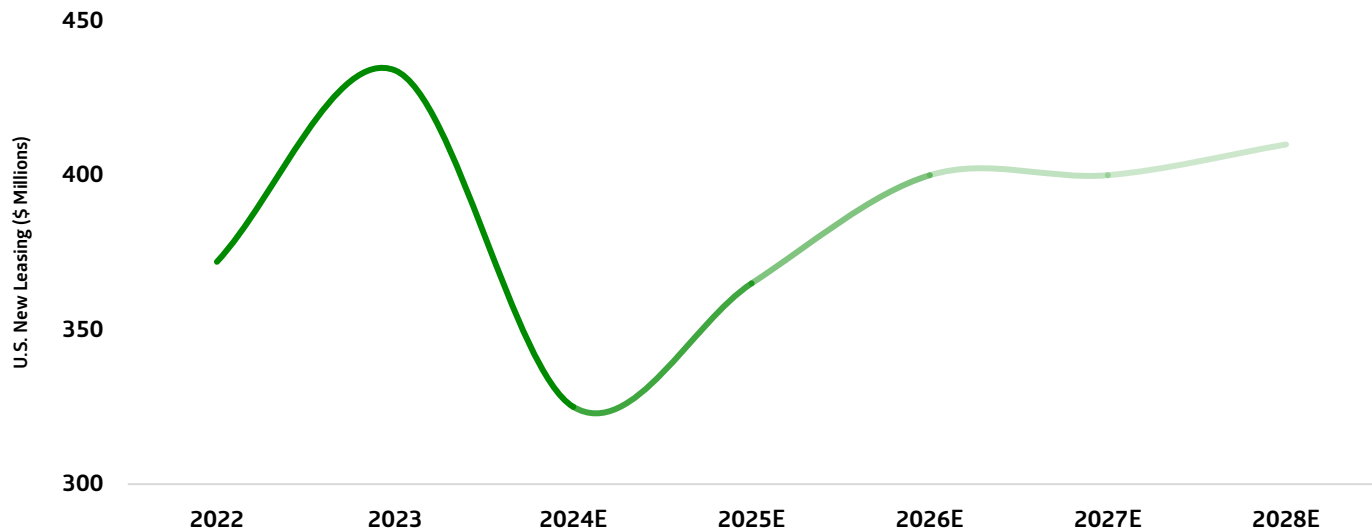
Underappreciated opportunity: bonus depreciation, interest rate deductibility, lower corporate tax



8. Upsized FWA Targets – Potential Modest Tower Benefit



Illustrative U.S. Tower New Leasing Forecast



Expect Tower Spend to Normalize Below 2023 Peak

Key Trends Summary

1. GPU Development Driving Densities & Purpose-Built AI-Data Centers

2. DeepSeek and Disruptive "Efficiency Shocks" – Less is More

3. The Fiber AI Frenzy: \$40B+ Market Opportunity; Focus on Attractive Yields

4. AI Data Center Demand Driving Power Crunches Across U.S. Markets

5. FTTH: Peak Deployment Years, The Era of "Convergence", Expect M&A

6. BEAD – Fluid Political Situation but Should Proceed with Modest Changes

7. Trump and Carr FCC Policies – More Favorable Regulatory Environment

8. Upsized FWA Targets – Potential Modest Tower Benefit



THANK YOU!



APPENDIX

Notable Data Center Research

- [Takeaways from PTC: Crosswinds in the Data center Sails \(January 24, 2025\)](#)
- [2025 Potential Catalysts \(January 6, 2025\)](#)
- [Top 10 Potential Surprises For 2025 \(January 2, 2025\)](#)
- [EQIX – Best Ideas 2025: Accelerating Revenue Growth & Expanding Margins \(Nov. 26, 2024\)](#)
- [Takeaways from the NAREIT REITWorld Conference \(Nov. 22, 2024\)](#)
- [EQIX – Cabs Are Here; Raises 2024 Guidance \(Oct. 31, 2024\)](#)
- [DLR – Record 3Q24 Leasing; Delivered Perfection But is Priced to Perfection \(Oct. 25, 2024\)](#)
- [3Q24 Data Services Preview \(Oct. 8, 2024\)](#)
- [EQIX - Takeaways Mgmt. Meeting; Expects Positive Billable Cab Net Adds 2H24 \(Oct. 4, 2024\)](#)
- [Data Center Channel Checks: Demand Remains Strong Despite Google Pullback \(Sept. 23, 2024\)](#)
- [EQIX – Record 2Q24 Gross Bookings And Pipe Suggests 2H24 Cab Inflection \(August 8, 2024\)](#)
- [DLR – In-Line 2Q24 Leasing; MSD 2025 Core-FFO/Sh. Top Priority \(July 26, 2024\)](#)
- [2Q24 Data Services Preview \(July 23, 2024\)](#)
- [Data Center Channel Checks: 2024 Remains On Track To Be Record Leasing Year \(July 23, 2024\)](#)
- [Conviction List – 1Q24 \(June 17, 2024\)](#)
- [Takeaways from the NAREIT REITweek Investor Conference \(June 6, 2024\)](#)
- [TD Cowen TMT Conference: AI Data Centers & Power Constraints Panel Takeaways \(May 30, 2024\)](#)
- [AotC - Data Centers, Power Constraints & Generative AI: The Path Forward \(May 28, 2024\)](#)
- [EQIX – Focus Shifts Back to Fundamentals; Encouraging Commentary on Bookings \(May 10, 2024\)](#)
- [DLR – Record 1Q24 Leasing; Raises 2024 Cash Renewal Spread & SS Cash NOI Growth Guide \(May 3, 2024\)](#)
- [1Q24 Data Services Preview \(April 15, 2024\)](#)
- [Data Center Channel Checks: Strong 1Q24 Hyperscale and Enterprise Leasing \(April 15, 2024\)](#)
- [EQIX- Same Short Thesis, Different Author: View Weakness as Buying Opp. \(March 21, 2024\)](#)
- [DLR - Thoughts on TikTok Exposure: Worst Case NT Neg. But LT Positive \(March 14, 2024\)](#)
- [EQIX - Announces CEO Succession; Impressive New CEO but Turnover Risk \(March 12, 2024\)](#)
- [Data Center Takeaways from Metro Connect: O'Power, Where Art Thou? \(Feb. 29, 2024\)](#)
- [DLR – Mixed 2024 Guide As SS NOI Growth Disappoints \(Feb. 16, 2024\)](#)
- [EQIX – Some Good, Some Bad: View Guide as Good Enough, Execution Risk \(Feb. 15, 2024\)](#)
- [Takeaways from PTC: The Stage is Set for Record 2024 Data Center Leasing \(Jan. 26, 2024\)](#)
- [DLR Signs Development JV With Blackstone: View as LT Positive \(Dec. 7, 2023\)](#)
- [Takeaways from the NAREIT REITworld Conference \(Nov. 16, 2023\)](#)
- [DLR Signs Development JV with Realty Income; Good Start But More is Needed \(Nov. 13, 2023\)](#)
- [DLR & Cyxtera: A Lot of Moving Pieces But View as Decent Outcome \(Nov. 1, 2023\)](#)
- [DLR – Fundamentals Continue to Improve, Await Development JVs \(Oct. 27, 2023\)](#)
- [C3Q23 Data Services Preview \(Oct. 25, 2023\)](#)
- [Data Center Channel Checks: A Whole New World \(Oct. 23, 2023\)](#)
- [Public Cloud XI: Cost Savings Cycle Makes Way for Burgeoning Gen AI \(Sept. 25, 2023\)](#)
- [Takeaways from the Road: Data Center Demand, Constraints, and Densities \(Sept. 5, 2023\)](#)
- [Takeaways From Comm. Infra. Summit: DigitalBridge Keynote \(August 11, 2023\)](#)
- [DLR - Fundamentals Improve, All Eyes on the Development JV \(July 28, 2023\)](#)
- [A Tsunami of AI Demand Hits the Data Center Market \(July 24, 2023\)](#)
- [DLR Announces Chicago Core JV: We Believe Another Core JV in Process \(July 17, 2023\)](#)
- [Best SMIDCAP Ideas: Alternative Way to Play AI Theme \(June 16, 2023\)](#)
- [Takeaways from the NAREIT Investor Conference \(June 8, 2023\)](#)
- [DLR Raises ~\\$1.1B in Equity; Announces Texas DC Sale; We View As Net Positive \(June 5, 2023\)](#)
- [CYXT – Discontinuing Coverage \(June 5, 2023\)](#)
- [Generative AI Set To Drive Monumental Tech Shifts – Ahead of The Curve \(May 22, 2023\)](#)
- [Checks on DLR Asset Sales Vol. 2: Sells TX Asset, Chicago Core JV In Jeopardy \(May 19, 2023\)](#)
- [CYXT – Cyxtera Enters RSA Agreement; We View Chapter 11 Bankruptcy as Likely Outcome \(May 8, 2023\)](#)
- [EQIX – Upside 1Q23 results; Raises 2023 Guidance; Guidance Remains Conservative \(May 4, 2023\)](#)
- [DLR – Mixed 1Q23 Results; Lowers 2023 revenue guide; We Still Await a Core JV Announcement \(April 28, 2023\)](#)
- [DLR – Checks on DLR Asset Sales: Expect NT Core JV Announcement, See Upside to \\$750MM Target \(April 17, 2023\)](#)
- [CYXT – Downgrade To Market Perform; Elevated Refinancing Risk With Uncertain Outcome Matters \(March 20, 2023\)](#)
- [Chart of the Week – U.S. Data Center Pricing \(February 26, 2023\)](#)
- [Takeaways From Metro Connect: Private Tower Multiples to Soften; FTTH Slowdown \(February 6, 2023\)](#)
- [Chart of the Week – Data Center Power Densities \(January 27, 2023\)](#)
- [Takeaways from PTC: Scale Matters \(January 20, 2023\)](#)
- [2022 Potential Catalysts \(January 4, 2023\)](#)

Notable Tower Research

- [2025 Potential Catalysts \(January 6, 2025\)](#)
- [Top 10 Potential Surprises For 2025 \(January 2, 2025\)](#)
- [CCI – Largely Maintains 2024 Guidance; The Wait for the Fiber Resolution Continues \(Oct. 16, 2024\)](#)
- [SBAC – Mixed 3Q24 Results; Raises 2024 Guide; Acquires Millicom Towers For \\$975MM \(Oct. 28, 2024\)](#)
- [AMT – Strong 2Q24 Results; Raises '24 Guide; Shifting Capital To Developed Markets \(July 30, 2024\)](#)
- [CCI – Mixed 2Q24 results; Maintains '24 Guide; Await Conclusion Of Strategic Review \(July 17, 2024\)](#)
- [SBAC – Slight Downside 2Q24 Results; Lowers '24 Guide; M&A Seems More Likely \(July 29, 2024\)](#)
- [Conviction List – 1Q24 \(June 17, 2024\)](#)
- [CCI – Updates 2024 Guidance for Operational Changes; We View the Change as Positive \(June 11, 2024\)](#)
- [Takeaways from the NAREIT REITweek Investor Conference \(June 6, 2024\)](#)
- [SBAC – Downside 1Q24 Results; Lowers 2024 Guidance; Lowers Intl. Organic Growth Guide \(April 30, 2024\)](#)
- [AMT – Upside 1Q24 Results; Raises 2024 Guide; Modest Improvement in Carrier Activity \(April 30, 2024\)](#)
- [CCI – Solid 1Q24 Results; Maintains 2024 Guidance; Signs of Progress on Fiber Review \(April 17, 2024\)](#)
- [SBAC - Investor Meeting Takeaways: Upside to '24 U.S. New Leasing Guide is Unlikely \(April 8, 2024\)](#)
- [SBAC - Downside Initial 2024 Guidance; Carrier Spending Remains Muted \(February 27, 2024\)](#)
- [AMT - Downside Initial 2024 Guidance; A Lot Of Moving Pieces \(February 27, 2024\)](#)
- [CCI - Good 4Q23 Results; Fiber Review Underway; Maintain 2024 Guidance \(January 26, 2024\)](#)
- [Thoughts on CCI/Elliott: This Time It's Different, Though No Easy Outcome \(November 27, 2023\)](#)
- [Takeaways from the NAREIT REITWorld Conference \(November 16, 2023\)](#)
- [3Q23 Towers Preview \(October 9, 2023\)](#)
- [2Q23 Towers Preview \(June 18, 2023\)](#)
- [Takeaways from the NAREIT Investor Conference \(June 8, 2023\)](#)
- [Thoughts on Amazon MVNO: Skeptical but the Carriers Will Play Ball \(June 2, 2023\)](#)
- [Takeaways from ConnectX: "Halftime for 5G – Modest Pause but Bullish Long-Term \(May 15, 2023\)](#)
- [1Q23 Towers Preview \(April 18, 2023\)](#)
- [4Q22 Towers Preview \(January 23, 2023\)](#)
- [Telco vs. Cloud and Private Networks – Ahead of the Curve \(January 20, 2023\)](#)
- [Conviction List – Post C3Q22 Update \(December 21, 2022\)](#)
- [Takeaways from Mgmt. Mtg: Expect Good 4Q22/Guide; Pathway for Valuation Unlock \(December 6, 2022\)](#)
- [Takeaways from Virtual Comm. Infra Summit: Company Presentations \(August 16, 2022\)](#)
- [Takeaways from Comm. Infra Summit: Company Presentations \(August 16, 2022\)](#)
- [Takeaways from ConnnectX: Small Cells Sluggish; Labor/Supply Manageable \(May 31, 2022\)](#)
- [The Case For AMT: Expect AMT to Regain Valuation Premium vs. CCI \(March, 24, 2022\)](#)
- [Auction 110 Results: AT&T and Dish Go Nationwide, T-Mobile Targeted Spend \(January 18, 2022\)](#)
- [CCI - Signs New MLA w/ TMUS; We View as Meaningfully Positive \(January 6, 2022\)](#)
- [2022 Potential Catalysts \(January 4, 2022\)](#)
- [Top 10 Potential Surprises for 2022 \(January 3, 2022\)](#)
- [Conviction List – Post C3Q21 Update \(December 1, 2021\)](#)
- [AMT - AMT to Buy COR; Beginning of a New Era \(November 15, 2021\)](#)
- [Takeaways from the NAREIT Investor Forum \(November 12, 2021\)](#)
- [IHS - Initiation: Emerging Markets Focus, Attractive Growth, Cheap Valuation \(November 8, 2021\)](#)

Notable Fiber Research

- [Thoughts on DeepSeek on Comm. Infra. – Pricing is an Output, the Plumbing Wins](#) (January 28, 2025)
- [2025 Potential Catalysts](#) (January 6, 2025)
- [Top 10 Potential Surprises for 2025](#) (January 3, 2025)
- [UNIT – Best Ideas 2025: UNIT to Enjoy FTTH and GenAI Fiber Tailwinds](#) (December 6, 2024)
- [U.S. Broadband – State of the Market – December 2024](#) (December 2, 2024)
- [Takeaways from Comm. Infra. Summit: Company Presentations](#) (August 16, 2024)
- [The LUMN Stock Rally and sizing the GenAI Fiber Opportunity](#) (August 4, 2024)
- [TMT Conference: Comm. Infra. & Telecom Services Takeaways](#) (May 31, 2024)
- [FTTH and FWA Survey – 1Q24](#) (May 23, 2024)
- [FTTH Symposium Takeaways: Business Case Still Healthy; Roll-Ups are Years Away](#) (March 22, 2024)
- [Fiber Takeaways from Metro Connect](#) (February 29, 2024)
- [FYBR Strategic Review: Fiber & Footprint Allows for Many Unlock Opportunities](#) (February 5, 2024)
- [Thoughts on CCI/Elliot: This Time It's Different, Though No Easy Outcome](#) (November 27, 2023)
- [TD Cowen Interviews | Opportunities & Challenges for FTTH Rollouts + Video](#) (September 5, 2023)
- [FTTH/Tower Comm. Infra. Summit Takeaways; FTTH ABS Frenzy, '24 Towers Mixed Bag](#) (August 15, 2023)
- [Takeaways from Comm. Infra. Summit: Zayo Keynote](#) (August 11, 2023)
- [FYBR ABS Raise is a Re-Rating Game-Changer; Debt Worries Done; Reit. Outperform](#) (July 24, 2023)
- [Chart of the Week – Biggest Perceived Challenges in Deploying A Full-Fiber Network](#) (October 21, 2022)
- [FTTH Symposium Takeaways: Fever Pitch, Upside Penetration, Labor/Supply Focus](#) (April 11, 2022)
- [Livin' on the Edge II: Accelerating Toward the Edge](#) (December 7, 2021)
- [FTTH: Navigating the Road to Gigabit America - Ahead Of the Curve + Video](#) (November 22, 2021)
- [There's No Place Like Home – Ahead Of The Curve](#) (November 20, 2020)
- [Livin' On The Edge, Part 1: Evolving Tomorrow's Internet](#) (May 26, 2020)

Communications Infrastructure – Comparative Analysis

Company	BASIC INFORMATION					VALUATION								GROWTH								Dividend C2025E	Dividend Yield C2025E	Dividend Payout (% of AFFO)	Leverage (LQA)		Performance					
	Ticker	Rating	Price 2/19/2025	Mkt Cap \$ MM	EV \$ MM	EV/Sales		EV/EBITDA		P/FFO		P/AFFO		Sales		EBITDA		FFO/Sh		AFFO/Sh					Total Debt/ Total Cap	Net Debt/ EBITDA	2024	2025 YTD				
						C2025E	C2026E	C2025E	C2026E	C2025E	C2026E	C2025E	C2026E	C2025E	C2026E	C2025E	C2026E	C2025E	C2026E	C2025E	C2026E											
U.S. Based Towers																																
American Tower	AMT **	1	\$188.56	89,087	122,527	11.7x	11.1x	17.2x	16.3x	17.1x	16.0x	17.9x	16.2x	-5.5%	5.4%	-2.2%	5.5%	7.0%	6.5%	-1.0%	10.8%	\$7.13	3.8%	67.7%	97.4%	4.4x	-15.0%	2.8%				
Crown Castle	CCI **	1	\$89.26	39,015	62,684	9.8x	9.5x	15.2x	14.8x	13.6x	13.3x	12.8x	12.3x	-2.8%	3.0%	-1.5%	3.1%	-0.9%	2.0%	-1.1%	4.4%	\$6.26	7.0%	89.9%	82.6%	5.5x	-21.2%	-1.7%				
SBA Coms	SBAC **	1	\$207.77	22,328	35,047	12.6x	11.7x	17.9x	16.7x	17.5x	16.2x	16.1x	15.0x	4.6%	7.4%	4.1%	7.0%	8.5%	8.2%	-2.4%	7.6%	\$4.51	2.2%	35.0%	158.4%	6.7x	-19.7%	1.9%				
Mean						11.4x	10.8x	16.8x	15.9x	16.0x	15.2x	15.6x	14.5x	-1.2%	5.3%	0.1%	5.2%	4.8%	5.5%	-1.5%	7.6%	\$5.97	4.3%	64.2%	112.8%	5.5x	-18.6%	1.0%				
Median						11.7x	11.1x	17.2x	16.3x	17.1x	16.0x	16.1x	15.0x	-2.8%	5.4%	-1.5%	5.5%	7.0%	6.5%	-1.1%	7.6%	\$6.26	3.8%	67.7%	97.4%	5.5x	-19.7%	1.9%				
Data Centers																																
Digital Realty Trust	DLR **	2	\$169.61	60,140	76,172	13.0x	12.1x	27.8x	25.1x	24.1x	22.6x	26.4x	24.6x	5.2%	8.0%	8.6%	10.9%	4.8%	6.8%	5.1%	7.4%	\$4.88	2.9%	75.9%	43.9%	5.9x	31.8%	-4.4%				
Equinix	EQIX **	1	\$939.08	93,044	109,540	12.1x	10.9x	24.8x	20.8x	34.2x	29.9x	25.2x	22.2x	3.9%	10.2%	8.0%	19.0%	27.6%	14.3%	6.2%	13.6%	\$18.76	2.0%	50.4%	58.8%	4.0x	17.1%	-0.4%				
Mean						12.5x	11.5x	26.3x	22.9x	29.2x	26.3x	25.8x	23.4x	4.5%	9.1%	8.3%	15.0%	16.2%	10.6%	5.6%	10.5%	\$11.82	2.4%	63.1%	51.4%	5.0x	24.4%	-2.4%				
Median						12.5x	11.5x	26.3x	22.9x	29.2x	26.3x	25.8x	23.4x	4.5%	9.1%	8.3%	15.0%	16.2%	10.6%	5.6%	10.5%	\$11.82	2.4%	63.1%	51.4%	5.0x	24.4%	-2.4%				
China-Based Data Centers																																
GDS Holdings	GDS **	1	\$43.01	8,025	15,156	8.1x	29.5x	17.4x	62.7x	NM	NM	NM	NM	18.5%	-72.7%	23.2%	-72.3%	NM	NM	NM	NM	NA	NA	NA	84.6%	9.9x	160.5%	81.0%				
Z1Vianet	VNET	NR	\$13.04	3,414	10,522	8.5x	7.5x	29.0x	23.7x	NM	NM	NM	NM	11.4%	14.0%	17.3%	22.3%	NM	NM	NM	NM	NA	NA	NA	NA	NA	65.2%	175.1%				
Mean						8.3x	18.5x	23.2x	43.2x	NM	NM	NM	NM	14.9%	-29.3%	20.2%	-25.0%	NM	NM	NM	NM	NM	NM	NM	84.6%	9.9x	112.8%	128.1%				
Median						8.3x	18.5x	23.2x	43.2x	NM	NM	NM	NM	14.9%	-29.3%	20.2%	-25.0%	NM	NM	NM	NM	NM	NM	NM	84.6%	9.9x	112.8%	128.1%				
Private Equity																																
DigitalBridge	DBRG**	1	\$10.75	2,091	2,508	6.9x	6.2x	20.7x	15.0x	33.9x	14.6x	NM	NM	-42.6%	11.5%	20.1%	38.3%	NM	NM	NM	NM	\$0.04	0.4%	NM	13.2%	-1.1x	-35.7%	-4.7%				
Mean						6.9x	6.2x	20.7x	15.0x	NM	NM	NM	NM	-42.6%	11.5%	20.1%	38.3%	NM	NM	NM	NM	\$0.04	0.4%	NM	13.2%	-1.1x	-35.7%	-4.7%				
Median						6.9x	6.2x	20.7x	15.0x	NM	NM	NM	NM	-42.6%	11.5%	20.1%	38.3%	NM	NM	NM	NM	\$0.04	0.4%	NM	13.2%	-1.1x	-35.7%	-4.7%				
Network Infrastructure																																
Uniti Group	UNIT *	1	\$5.48	2,022	10,783	4.3x	2.8x	8.3x	6.7x	4.5x	5.0x	2.7x	2.0x	115.3%	50.5%	38.4%	24.5%	17.2%	-9.5%	55.2%	30.3%	\$0.00	0.0%	0.0%	139.1%	9.3x	-4.8%	-0.4%				
Mean						4.3x	2.8x	8.3x	6.7x	4.5x	5.0x	2.7x	2.0x	115.3%	50.5%	38.4%	24.5%	17.2%	-9.5%	55.2%	30.3%	\$0.00	0.0%	0.0%	139.1%	9.3x	-4.8%	-0.4%				
Median						4.3x	2.8x	8.3x	6.7x	4.5x	5.0x	2.7x	2.0x	115.3%	50.5%	38.4%	24.5%	17.2%	-9.5%	55.2%	30.3%	\$0.00	0.0%	0.0%	139.1%	9.3x	-4.8%	-0.4%				
All Excluding Intl. Operators						8.8x 8.0x 16.5x 14.4x 18.1x 14.7x 14.4x 13.2x								9.8% 12.0% 9.4% 13.5% 9.2% 4.0% 8.9% 10.6%								\$5.20 2.3%		45.6%		74.2% 4.3x		-6.0% -0.8%				
All Including Intl. Operators						7.4x 8.5x 14.8x 16.6x 16.5x 13.3x 13.3x 12.2x								8.0% 3.3% 9.0% 5.1% -7.5% 8.8% 16.4% 9.3%								\$3.79 1.9%		45.6%		74.3% 4.1x		13.3% 20.1%				
Market Indices																																
S&P 500	SP50		6.144			15.2x	14.5x	36.8x	49.2x	NA	NA	NA	NA	-85.4%	14.1%	-61.0%	9.3%	NA	NA	NA	NA		1.9%	NA	NA	NA	23.3%	4.5%				

Ratings: 1 = Buy, 2 = Hold, 3 = Sell, 4 = Suspended, NR = Not Rated
* Covered by Gregory Williams, ** Covered by Michael Elias



Cable, Satellite, and Telecom Services – Comparative Analysis

Company	Ticker	Rating	BASIC INFORMATION				BASIC FINANCIALS						VALUATION						GROWTH						Margin (C2025E)		(C2025E)		Dividend Yield C2025E	Net Debt/ EBITDA (LQ)	Performance		
			Price 2/19/2025	Price Target	Mkt Cap \$ MM	EV \$ MM	Revenue C2025E	Revenue C2026E	EBITDA C2025E	EBITDA C2026E	FCF/Share C2025E	FCF/Share C2026E	EV/Sales C2025E	EV/Sales C2026E	EV/EBITDA C2025E	EV/EBITDA C2026E	FCF Yield C2025E	FCF Yield C2026E	Sales C2025E	Sales C2026E	EBITDA C2025E	EBITDA C2026E	FCF/Share C2025E	FCF/Share C2026E	Gross Margin	EBITDA Margin	Capex/ Sales	D&A/ Sales			2024 YTD	2025 YTD	
Cable & Satellite																																	
	ATUS *	1	\$2.87	\$3.50	1,322	26,317	8,541	8,369	3,300	3,313	\$0.18	\$0.36	3.1x	3.1x	8.0x	7.9x	6.1%	12.4%	-4.6%	-2.0%	-3.3%	0.4%	-45.7%	101.5%	67.8%	38.6%	14.5%	17.2%	NM	7.5x	-25.8%	19.1%	
	Alice USA S&P 500	2	\$287.23	\$465.00	1,734	4,995	1,535	1,526	826	822	\$47.04	\$42.48	3.3x	3.3x	6.0x	6.1x	16.4%	14.8%	-3.1%	-0.6%	-3.3%	-0.5%	-7.3%	-9.7%	74.0%	53.8%	19.6%	20.6%	4.4%	3.8x	-34.9%	-20.7%	
	Charter	CHTR *	1	\$361.58	\$500.00	57,872	148,846	55,080	55,543	22,783	23,516	\$21.20	\$29.83	2.7x	2.7x	6.5x	6.3x	5.9%	8.2%	0.0%	0.8%	0.9%	3.2%	9.0%	40.7%	62.9%	41.4%	21.8%	16.4%	NM	4.1x	-11.8%	5.5%
	Comcast	CMCSA *	1	\$36.48	\$46.00	142,276	234,047	122,535	127,031	38,401	39,980	\$4.47	\$4.75	1.9x	1.8x	6.1x	5.9x	12.2%	13.0%	-1.0%	3.7%	0.9%	4.1%	39.2%	6.3%	NM	31.3%	9.5%	12.7%	3.6%	2.6x	-14.4%	-2.8%
	EchoStar	SATS *	1	\$30.01	\$30.00	8,599	32,002	15,210	14,989	1,582	1,937	(\$6.72)	(\$3.92)	2.1x	2.1x	20.2x	16.5x	NM	NM	-3.5%	-1.5%	-1.4%	22.4%	NM	NM	27.8%	10.4%	7.3%	11.9%	NM	18.5x	38.2%	31.0%
	Mean												2.6x	2.6x	9.4x	8.5x	10.2%	12.1%	-2.4%	0.1%	-0.7%	5.9%	-1.2%	34.7%	58.1%	35.1%	14.6%	15.8%	4.0%	7.3x	-9.8%	6.4%	
	Median												2.7x	2.7x	6.5x	6.3x	9.2%	12.7%	-3.1%	-0.6%	0.9%	3.2%	0.8%	23.5%	65.4%	38.6%	14.5%	16.4%	4.0%	4.1x	-14.4%	5.5%	
Wireless																																	
	AT&T	T *	2	\$26.24	\$29.00	188,135	308,369	123,810	124,914	46,110	47,688	\$2.90	\$2.70	2.5x	2.5x	6.7x	6.5x	11.0%	10.3%	1.2%	0.9%	3.0%	3.4%	12.8%	-6.7%	NM	37.2%	16.3%	17.1%	4.2%	2.8x	35.7%	15.2%
	T-Mobile	TMUS *	1	\$263.35	\$251.00	297,150	370,006	85,911	89,417	33,473	36,778	\$15.30	\$16.53	4.3x	4.1x	11.1x	10.1x	5.8%	6.3%	5.5%	4.1%	5.4%	9.9%	5.4%	8.0%	62.0%	39.0%	11.7%	15.8%	NM	2.3x	37.7%	19.3%
	US Cellular	USM	NR	\$66.87	NA	3,483	7,069	3,676	3,660	936	886	\$1.12	\$0.63	1.9x	1.9x	7.5x	8.0x	1.7%	0.9%	-2.2%	-0.4%	-3.0%	-5.3%	NM	NM	0.0%	25.5%	15.3%	17.4%	NM	3.8x	51.0%	6.6%
	Verizon	VZ *	1	\$42.01	\$50.00	177,576	317,396	136,705	138,254	50,108	51,226	\$4.29	\$4.51	2.3x	2.3x	6.3x	6.2x	10.2%	10.7%	1.4%	1.1%	2.7%	2.2%	-8.5%	5.0%	59.9%	36.7%	12.7%	13.2%	6.5%	2.9x	6.1%	5.1%
	Mean												2.8x	2.7x	7.9x	7.7x	7.2%	7.1%	1.5%	1.4%	2.0%	2.5%	3.2%	2.1%	40.6%	34.6%	14.0%	15.9%	5.4%	3.0x	32.6%	11.6%	
	Median												2.4x	2.4x	7.1x	7.2x	8.0%	8.3%	1.3%	1.0%	2.9%	2.8%	5.4%	5.0%	59.9%	36.9%	14.0%	16.5%	5.4%	2.9x	36.7%	10.9%	
Competitive																																	
	Cognit	CCOI *	1	\$83.44	\$101.00	3,997	5,656	1,103	1,254	340	457	(\$0.55)	\$2.40	5.1x	4.5x	16.6x	12.4x	NM	2.9%	5.8%	13.7%	-2.3%	34.4%	NM	NM	44.7%	30.8%	3.9%	34.1%	4.9%	11.6x	1.3%	8.3%
	Uniti Group	UNIT *	1	\$5.48	\$9.00	2,022	10,783	2,514	3,784	1,299	1,617	(\$0.18)	(\$0.18)	4.3x	2.8x	8.3x	6.7x	NM	NM	115.3%	50.5%	38.4%	24.5%	NM	NM	NM	51.7%	56.7%	44.2%	0.0%	9.3x	-4.8%	-0.4%
	Mean												4.7x	3.7x	12.5x	9.5x	NM	2.9%	60.6%	32.1%	18.0%	29.5%	NM	NM	44.7%	41.3%	30.3%	39.1%	2.4%	10.4x	-1.8%	4.0%	
	Median												4.7x	3.7x	12.5x	9.5x	NM	2.9%	60.6%	32.1%	18.0%	29.5%	NM	NM	44.7%	41.3%	30.3%	39.1%	2.4%	10.4x	-1.8%	4.0%	
LECs																																	
	Lumen	LUMN *	2	\$4.88	\$6.00	4,828	20,845	12,291	12,025	3,273	3,581	\$0.45	\$0.22	1.7x	1.7x	6.4x	5.8x	9.1%	4.6%	-6.2%	-2.2%	-16.9%	9.4%	-60.0%	-50.1%	44.6%	26.6%	32.2%	22.6%	0.0%	3.8x	190.2%	-8.1%
	Frontier Comm.	FYBR *	2	\$35.70	\$38.50	8,889	19,380	5,920	6,083	2,408	2,591	(\$6.05)	(\$5.08)	3.3x	3.2x	8.0x	7.5x	NM	NM	0.4%	2.8%	8.0%	7.6%	NM	NM	NM	40.7%	46.4%	20.0%	0.0%	4.8x	NM	19.0%
	TDS	TDS	NR	\$39.57	NA	4,194	8,890	4,794	4,842	1,352	1,331	\$0.39	(\$0.05)	1.9x	1.8x	6.6x	6.7x	1%	NM	-3.2%	1.0%	1.7%	-1.5%	-31.6%	NM	NM	28.2%	18.5%	19.0%	NM	4.1x	85.9%	16.0%
	Mean												2.3x	2.3x	7.0x	6.7x	5.1%	4.6%	-3.0%	0.5%	-2.4%	5.2%	-45.8%	-50.1%	44.6%	31.8%	32.4%	20.6%	0.0%	4.2x	83.5%	9.0%	
	Median												1.9x	1.8x	6.6x	6.7x	5.1%	4.6%	-3.2%	1.0%	1.7%	7.6%	-45.8%	-50.1%	44.6%	28.2%	32.2%	20.0%	0.0%	4.1x	60.2%	16.0%	
All																																	
Cable/Telco Services													4.2x	5.1x	12.8x	12.7x	7.8%	7.7%	7.6%	1.8%	15.1%	4.4%	-7.9%	13.3%	47.1%	34.9%	21.3%	20.8%	2.8%	5.4x	17.1%	5.2%	
													2.9x	2.7x	8.9x	8.0x	8.0%	8.4%	7.6%	5.1%	2.4%	8.2%	-9.6%	11.9%	49.3%	35.1%	20.5%	20.2%	3.0%	5.8x	27.2%	8.1%	
Market Indices																																	
	S&P 500	SP50	6,144				1,717	1,717	390	390	NA	NA	2.9x	2.9x	13.0x	13.0x	NA	NA	0.0%	0.0%	0.0%	0.0%	NA	NA	34.7%	13.3%			1.8%	NA	23.3%	4.5%	

Ratings: 1 = Buy, 2 = Hold, 3 = Sell, 4 = Suspended, NR = Not Rated
* Covered by Gregory Williams