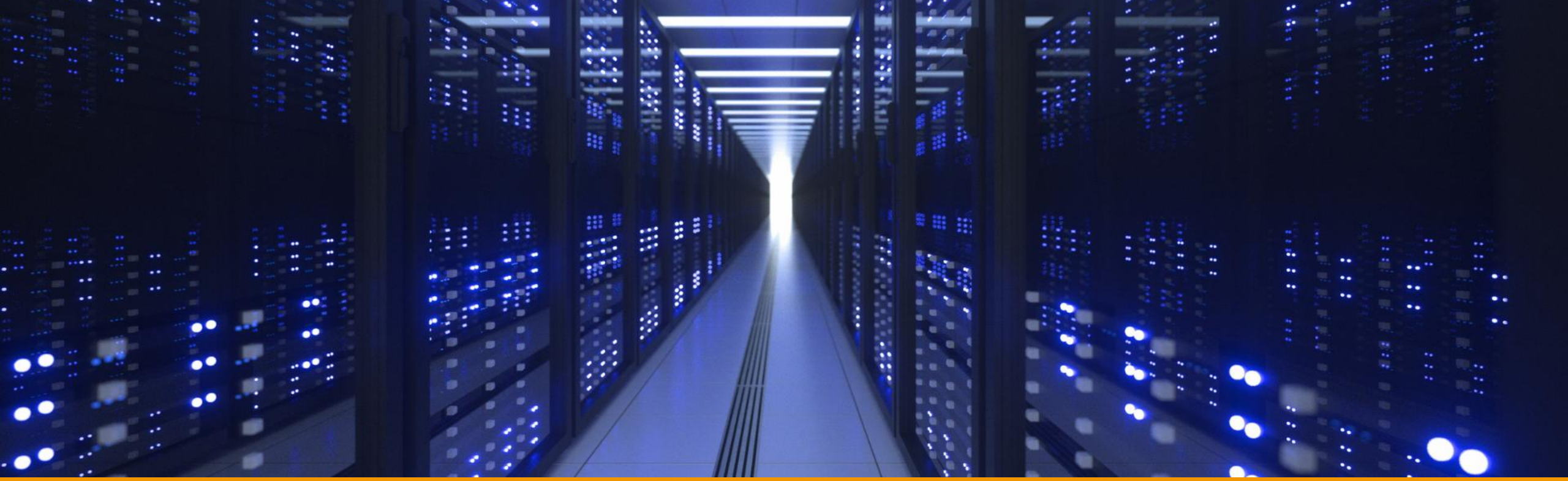

Data Centers in the US

VP: Leo Chen
George Huang, Molly Liu, Fiona Shen

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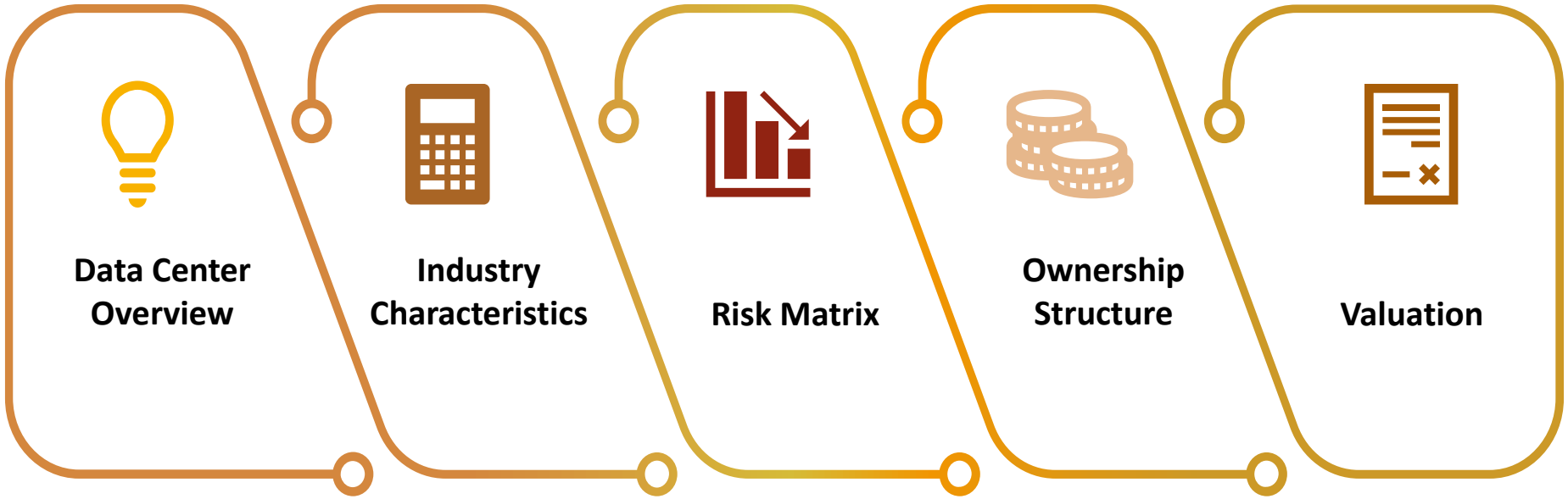
Agenda


Data Center Overview
Industry Characteristics
Risk Matrix
Ownership Structure
Valuation

Data Center Ecosystem Overview

Data centers aggregate capital, infrastructure, and technology from key industry participants across the value chain

Data Center Value Chain

Infrastructure Providers

Construction

Turner

Cooling

VERTIV.

Energy

OKLO

- Optimize **site selection** and **modular design** in data center campuses
- Generate revenue from land acquisition, site development and skilled labor

- Utilities and equipment suppliers deploy **sustainable energy** and **advanced cooling**
- Sell related infrastructure and contract to operators

Operators

Hyperscale Cloud

aws

Google Cloud

Azure

Colocation

DIGITAL REALTY

EQUINIX

- Cloud providers and colocation firms that **own, run, and lease data centers**; optimizing server and infrastructure utilization
- **Rent out resources and space** to ultimately serve end users like Website, Enterprise, & AI models

Developers

Computing

intel

NVIDIA

AMD

Networking

ARISTA

CISCO

Storage

SUPERMICRO

- **Sell hardware to operators**, enabling computing workloads
- Captures high value but faces **capacity constraints**

Source: Synergy Research Group, McKinsey

The Role of Data Centers in Digital Economy

Data Centers evolved into different types to serve different customer needs

Hyperscale

Facilities span hundreds of thousands to millions of square feet, designed to **support cloud service providers**

Pay-as-you-go virtual infrastructure; customers access compute, storage, AI/ML, and networking **without physical hardware investment**

aws Azure Google Cloud ORACLE

AI Clouds

AI workloads demand **ultra-parallel compute and bandwidth** that CPUs cannot handle

GPUs deliver **scalable training and real-time inference** through **optimized interconnects** and cooling

Lambda CoreWeave Crusoe

Enterprise Colocation

Enterprises rent physical space to install and operate their own IT equipment; **supply the building, power, cooling, physical security, and network access.** However, but **customers bring and own their hardware** (servers, routers, storage arrays)

Serve **organizations requiring tight hardware control** due to regulatory or privacy needs

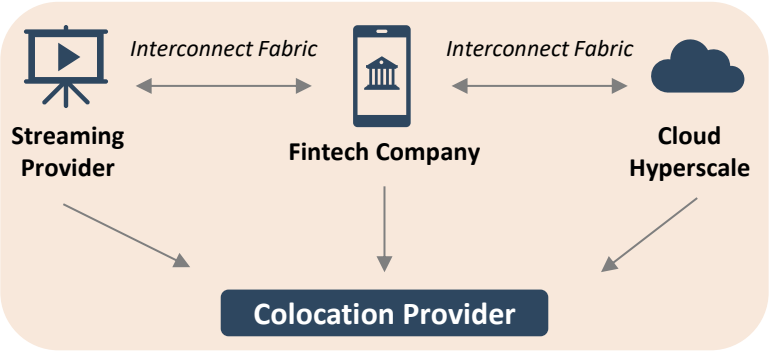
Customers must purchase, install, and manage hardware, potentially causing longer operational delays during outages

DATABANK DIGITAL REALTY switch QTS CyrusOne Aligned Adaptive Data Centers

Interconnection

Private, **high-speed connections linking different companies, networks, or clouds within data centers**; enable direct data exchange without routing traffic over the public internet, reducing latency and security risks

Create digital ecosystems where **multiple parties exchange data** securely and rapidly



CORESITE EQUINIX cologix

Source: Amazon, Equinix

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Industry Characteristics and Key Drivers

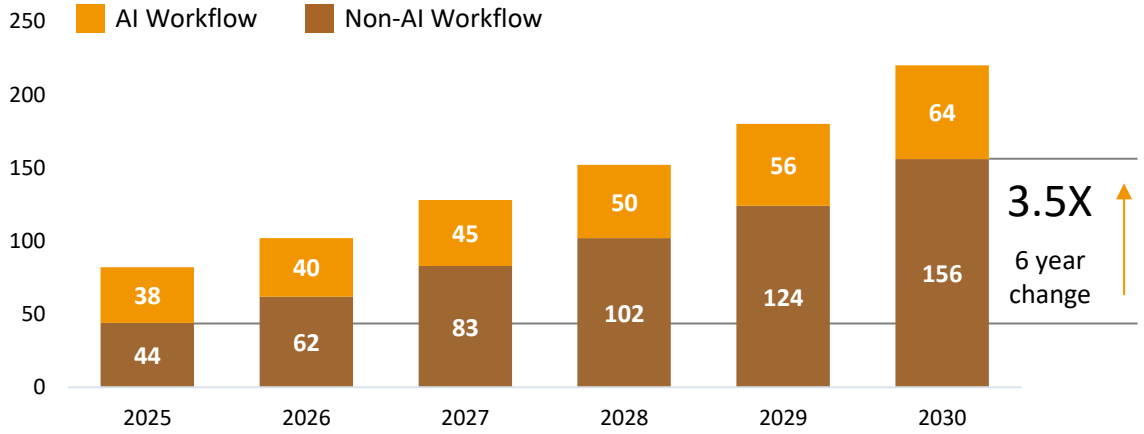
A high percentage of data center growth is coming from AI training & inference

Uptime Institute's Tier Classification System

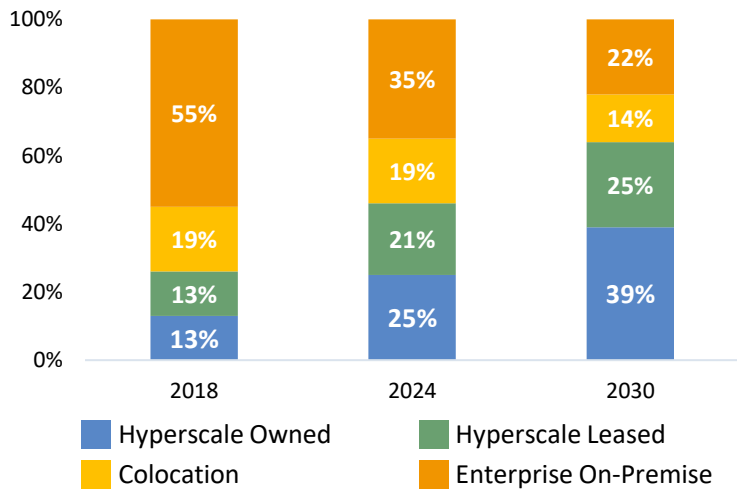
Tier	Name	Uptime	Redundancy Requirements	Infrastructure Description	Players
I	Basic Capacity	99.67%	N	Single distribution path for power and cooling	Small local/regional IT hosts, SME server rooms
II	Redundant Capacity	99.74%	N+1	Single distribution path with redundant critical components	Legacy sites or regional/older facilities
III	Concurrently Maintainable	99.98%	N+1	Multiple independent distribution paths	Mainstream Colocation Providers
IV	Fault Tolerant	99.99%	2N 2N+1	Multiple physically isolated, active power and cooling system	Selected Private Sites and Government Facilities

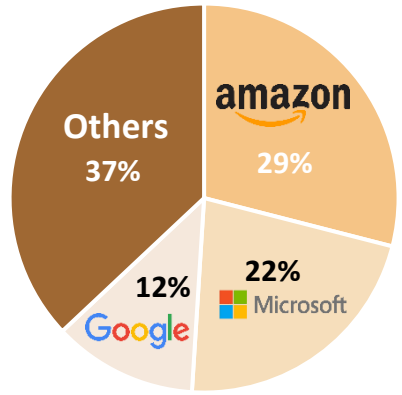
Higher Redundancy = Higher Costs, but Greater Reliability and Premium Tenant Value

Projected Global Data Center Capacity Demand Growth (in GW)



Data Center Capacity Trends & Hyperscale Market Share





Source: Coresite, Mckensey

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Key Markets Driving Data Center Expansion

Power availability, interconnection density, and tax incentives position four core states as long-term hyperscale hubs

Leading Markets	Hyperscale Presence and Colocation Density	Key Players
1  Northern Virginia	• Ashburn hosts **35% of hyperscale data globally**; home to over **396 data centers** • 70%+ of East Coast enterprise networks on-ramp through Ashburn's hotels • **Over 2 GW of operational Colo capacity**	aws, Google Cloud Platform, DIGITAL REALTY, EQUINIX, Meta, Azure, IRON MOUNTAIN, QTS
2  Texas	• Dallas is second to Ashburn for hyperscale development; Southeast expanded 4x with **646 MW operational**, **664 MW under construction** • Dallas-Fort Worth as the major interconnection in Midcontinent for banking and telecom	aws, Google Cloud Platform, DIGITAL REALTY, DATABANK, Meta, Azure, CyrusOne Built for Tomorrow. Ready Today., QTS
3  Arizona	• Phoenix has **5 GW hyperscale projects operational/under construction**; major hyperscale owners exceed 120 MW per site • Quality Job Tax Credit grants businesses $9,000+ in income per net full-time job for 3 years	Aligned Adaptive Data Centers, Google Cloud Platform, DIGITAL REALTY, STACK INFRASTRUCTURE, Meta, Azure, IRON MOUNTAIN, EdgeCore Digital Infrastructure
4  Illinois	• Chicago total data center reached 1.9 GW, **projected to hit 2.6 GW by 2030**; hyperscale campuses dominate suburban sites • 10.25% sales-tax exemption program attraction	aws, Google Cloud Platform, DIGITAL REALTY, EQUINIX, ORACLE, Azure, IRON MOUNTAIN, CORESITE

Source: Business Insider, nvtc, azcc, McGuire Woods

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Long-Term Risk Landscape for Data Center Industry

Evaluating key structural and operational risks impacting long-term stability and growth

Unit Definition

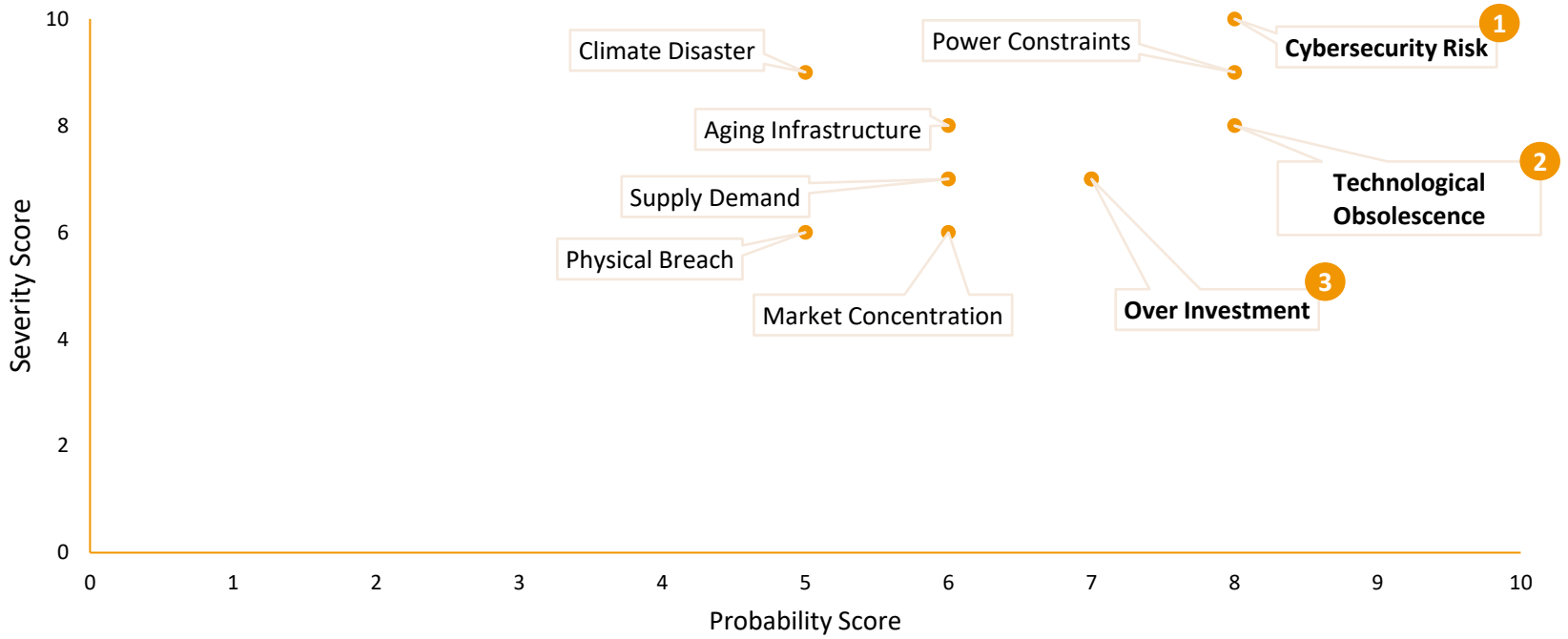
Severity Score- the magnitude of consequences

- 10: Catastrophic failure
- 7-9: Major disruption, urgent attention required
- 4-6: Meaningful but manageable
- 1-3: Low-priority risk

Probability Score- the expected frequency of the event occurring

- 10: Almost inevitable
- 7-9: Likely to happen frequently
- 4-6: Possible
- 1-3: Rare

Risk Matrix Scatterplot



1. Rising attack surface from interconnected systems increases potential for costly breaches
2. Rapid hardware and software innovation shortens asset lifecycles and devalues older facilities
3. Excessive capital deployment leads to supply glut, price compression, and delayed ROI

Source: Moodys, selc

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Why Data Centers Are Going Private: Flexibility, Scale, and the AI Build-Out

Private ownership unlocks higher leverage, flexible refinancing, and multiple long-term exit pathways

Take-Private Characteristics & Advantages

High Leverage Capital Stack:

Take-private deals typically use 60–75% debt backed by long-term hyperscaler leases, funded through syndicated loans, infra credit, and co-investment equity

Refinancing Agility:

Sponsors later refinance via ABS, CMBS, or sale-leasebacks to cut costs and recycle capital for expansion

Structural Flexibility (PropCo/OpCo)

Separating real estate (PropCo) from operations (OpCo) attracts specialized capital and optimizes risk allocation.

Scale & Strategic Rationale

Portfolio financing and reinvestment freedom bypass the 90% REIT dividend constraint, enabling faster hyperscale AI buildouts.

Case Study: KKR & GIP Acquisition of CyrusOne

Transaction Overview

- **Closed:** March 25, 2022
- **Buyers:** KKR and Global Infrastructure Partners (Blackrock)
- **Target:** CyrusOne Inc. (NASDAQ: CONE), a global data center REIT headquartered in Dallas

Deal Type & Value

- **Transaction Type:** Take-private leveraged buyout (LBO)
- **Total Enterprise Value:** $15 billion (including debt)
- **Purchase Price:** $90.50 per share (25% premium to unaffected stock price)
- **Valuation Multiples:** ~25–26x 2021E EBITDA and ~23x 2022E EBITDA

Financing Structure

- **Equity Financing:** KKR invested through KKR Global Infrastructure Investors IV ($15B) and KKR Real Estate Partners Americas III ($4.3B) funds. GIP invested via GIP IV Fund ($22B).
- **Debt Financing:** Combination of senior secured loans and bond issuance from top-tier lenders (Not disclosed)

Exit Rationale

IPO Re-listing:

Possible when AI infrastructure valuations support re-entry into public markets.

Securitization Recaps:

Sponsors use ABS or CMBS structures for partial exits and capital recycling.

Secondary Buyout:

Most common route — e.g., Aligned Data Centers' $40B sale to AI Infrastructure Partnership.

Source: Dgtl Infra, Ropes & Gray, BBG Real Estate Services

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How JV Capital Structures Enable Hyperscale Expansion

JV structure unlocks capacity growth by pairing institutional capital with operator development expertise and execution

JV Fund Overview

What is a JV Fund:

- A JV is a dominant financing model for **hyperscale / colocation DC**
- It pairs **capital partner** with **operator** development expertise through a shared ownership vehicle (SPV / JVCo)

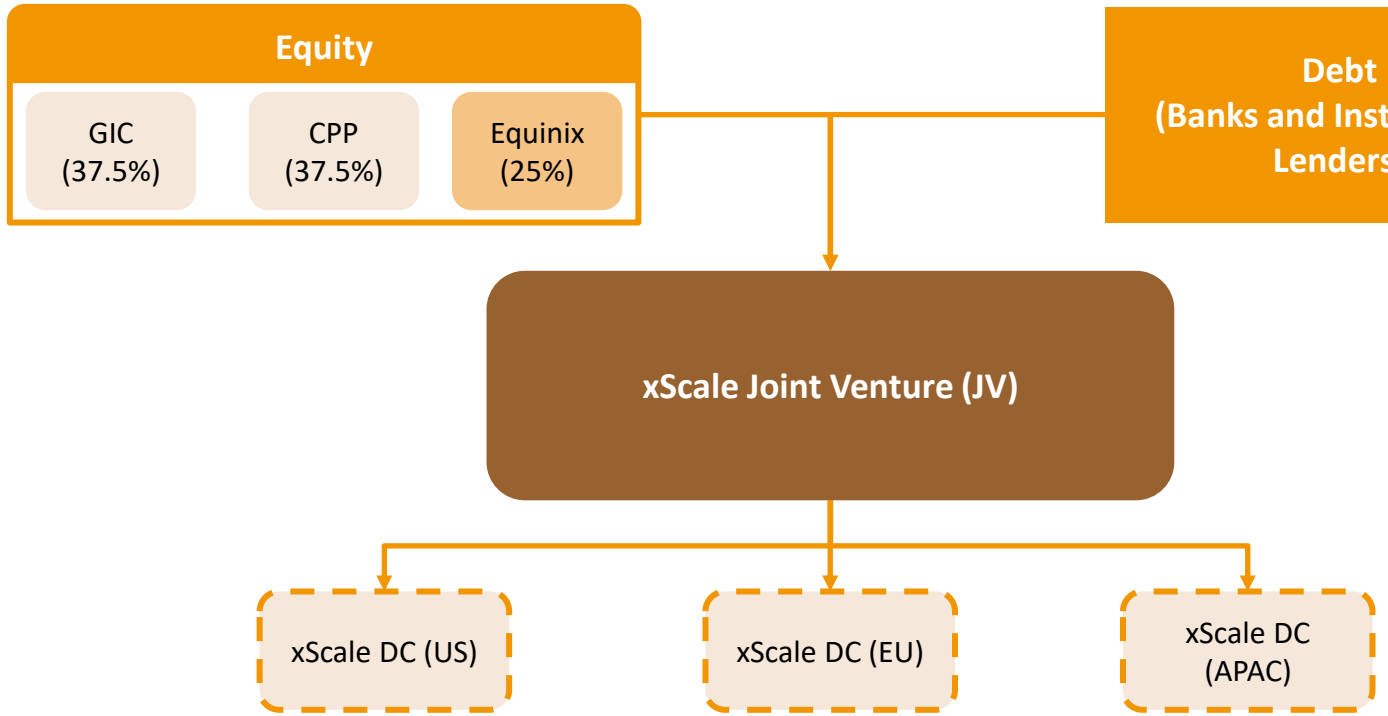
Capital Partner:
Contribute 70–90% of the equity and enable access to project-level debt financing

Operators:
Provide pipeline, development execution, operations, and customer relationships

Structure & Governance:
Assets held in JVCo (SPV / NewCo) at the project or portfolio level

Model Advantages:
Enables non-dilutive growth, investor asset exposure, and faster expansion

JV Fund Structure Diagram: GIC + CPP + Equinix Case



- ❖ Equinix, GIC, and CPP Investments formed a $15B joint venture in 2024 to expand Equinix's xScale DC
- ❖ GIC and CPP each hold 37.5%, Equinix 25%, funded through a mix of equity and bank debt
- ❖ The JV will deliver 1.5GW of new capacity for major AI and cloud providers like AWS, Google, and Microsoft

Source: Bisnow, GIC, Ropes & Gray

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How Data Centers Generate Revenue (Wholesale Colocation Model)

Base Rent and Interconnection Revenue Breakdown

Revenue

Base Rent Revenue

Tenant	IT Load (MW)	Lease Start	Ramp Start	Ramp Utilization	Rent ($/kW/month)	Year 1 Rent	Year 2 Rent (2% Escalator)	Year 3 Rent (2% Escalator)
Tenant A – Hyperscaler	12	Pre-lease (Year 0)	Year 1	70% → 90% → 95%	$176.50	$17,791,200	$23,331,888	$25,120,666
Tenant B – AI Cloud	6	Year 2	Year 2	70% → 90%	$176.50	$0	$8,895,600	$11,665,944
Tenant C – Enterprise	2	Year 1	Year 1	70% → 90% → 95%	$176.50	$2,965,200	$3,888,648	$4,186,778
Rental Income	CAPACITY MAX: 20 MW	–	–	–	–	**$20,756,400**	**$36,116,136**	**$37,108,992**

Meet-me-room/Interconnection Revenue

Tenant	IT Load (MW)	Interconnection /MW	Total Interconnection Ports	Price ($/Port/month)	MMR Revenue (Y1)	MMR Revenue (Y2)	MMR Revenue (Y3)
Tenant A – Hyperscaler	12	5	60	$300.00	$216,000	$216,000	$216,000
Tenant B – AI Cloud	6	8	48	$300.00	$172,800	$172,800	$172,800
Tenant C – Enterprise	2	12	24	$300.00	$86,400	$86,400	$86,400
MMR Income	20 MW	—	132 ports	—	**$475,200**	**$475,200**	**$475,200**

	Year 1	Year 2	Year 3
Total Revenue	**$21,231,600**	**$36,591,336**	**$37,584,192**

Pricing Structure

- **Leasing priced by power, not sq ft** — $/MW/month
- **Take-or-pay contracts** — pays for full contracted power
- **Long-term leases** — 5–15 years
- **Built-in rent growth** — 1–5% annual rent escalators
- **Phased capacity delivery** — ↓ upfront capex, aligns ramp

Revenue Components

Base Rent

= (Delivered MW × Utilization × 1,000 kW/MW) ×

($/kW/mo) × 12 months × (1 + escalator)^t

Meet-me-room/Interconnection

70% -90 % EBITDA Margin → the most profitable part

= # per MW × $/conn port × months

Recurring fees for network connectivity → ecosystem locks in

Source: CBRE Data Center Trends Report (2024)

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How Data Centers Generate Revenue (Wholesale Colocation Model)

Free Cash Flow and Power Pass-Through Economics

Power Cost Calculation *(rebill to tenants — nets ≈ $0)*							
Tenant	IT Load (MW)	Ramp Utilization	PUE	Power Price ($/kWh)	Power Revenue (Y1)	Power Revenue (Y2)	Power Revenue (Y3)
Tenant A – Hyperscaler	12	70% → 90% → 95%	1.35	$0.08	$7,947,072	$10,217,664	$10,785,312
Tenant B – AI Cloud	6	– → 70% → 90%	1.35	$0.08	$0	$3,973,536	$5,108,832
Tenant C – Enterprise	2	70% → 90% → 95%	1.35	$0.08	$1,324,512	$1,702,944	$1,797,552
Total Power Cost	20 MW	—	—	—	**$9,271,584**	**$15,894,144**	**$17,691,696**

Free Cash Flow Build – Wholesale Data Center Model			
Revenue	**Year 1**	**Year 2**	**Year 3**
Base Rent Revenue	$20,756,400.00	$36,116,136.00	$37,108,992.00
MMR / Cross-Connect Revenue	$475,200.00	$475,200.00	$475,200.00
Total Revenue	**$21,231,600.00**	**$36,591,336.00**	**$37,584,192.00**
COGS			
Power Expense (rebilled)	-$9,271,584.00	-$15,894,144.00	-$17,691,696.00
Less: Power Rebill to Tenants	$9,271,584.00	$15,894,144.00	$17,691,696.00
Repairs & Maintenance (~3%)	-$636,948.00	-$1,097,740.00	-$1,127,526.00
Property Tax & Insurance (~5%)	-$1,061,580.00	-$1,829,567.00	-$1,879,210.00
Total COGS	**-$1,698,528.00**	**-$2,927,307.00**	**-$3,006,736.00**
Gross Profit	**$19,533,072.00**	**$33,664,029.00**	**$34,577,456.00**
Operating Expenses (SG&A)			
Labor & Operations (~20%)	-$4,246,320.00	-$7,318,267.00	-$7,516,838.00
Corporate SG&A (~10%)	-$2,123,160.00	-$3,659,134.00	-$3,758,419.00
Total SG&A	**-$6,369,480.00**	**-$10,977,401.00**	**-$11,275,257.00**
EBITDA	**$13,163,592.00**	**$22,686,628.00**	**$23,302,199.00**
EBITDA Margin	**62%**	**62%**	**62%**
CapEx & Free Cash Flow			
Maintenance CapEx (2.5% of Core Rev)	-$530,790.00	-$914,783.00	-$939,605.00
Growth CapEx ($8M/MW Delivered)	-$112,000,000.00	-$48,000,000.00	$0.00
Free Cash Flow (Post-Growth CapEx)	**-$99,367,198.00**	**-$26,228,155.00**	**$22,362,595.00**

Source: CBRE Data Center Trends Report (2024), Digital Realty Trust

Power Cost Calculation

= IT MW × Util × 1000 × hrs/yr × PUE × $/kWh

Wholesale Cash Flow Economics

- **Power is pass-through** — Excluded from margin
- **High operating leverage** — 45 – 55 % EBITDA margin
- **Negative FCF during build years** — Due to Growth Capex
- **FCF inflects as utilization ramps and Capex drops**

EV/EBITDA – Market Benchmark

- Depreciation/CapEx distort net income
- Reflects recurring operating cash
- Long-term leases = stable value

EQUINIX ~23x – 26x

DIGITAL REALTY ~21x – 24x

Q&A

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