



Verizon Colocation Service

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Product Management

The Verizon Partner Network

Safe harbor statement

NOTE: In this presentation we have made forward-looking statements. These statements are based on our estimates and assumptions and are subject to risks and uncertainties. Forward-looking statements include the information concerning our possible or assumed future results of operations. Forward-looking statements also include those preceded or followed by the words “anticipates,” “believes,” “estimates,” “expects,” “hopes” or similar expressions. For those statements, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995. We undertake no obligation to revise or publicly release the results of any revision to these forward-looking statements, except as required by law. Given these risks and uncertainties, readers are cautioned not to place undue reliance on such forward-looking statements. The following important factors, along with those discussed in our filings with the Securities and Exchange Commission (the “SEC”), could affect future results and could cause those results to differ materially from those expressed in the forward-looking statements: adverse conditions in the U.S. and international economies; the effects of competition in the markets in which we operate; material changes

in technology or technology substitution; disruption of our key suppliers’ provisioning of products or services; changes in the regulatory environment in which we operate, including any increase in restrictions on our ability to operate our networks; breaches of network or information technology security, natural disasters, terrorist attacks or acts of war or significant litigation and any resulting financial impact not covered by insurance; our high level of indebtedness; an adverse change in the ratings afforded our debt securities by nationally accredited ratings organizations or adverse conditions in the credit markets affecting the cost, including interest rates, and/or availability of further financing; material adverse changes in labor matters, including labor negotiations, and any resulting financial and/or operational impact; significant increases in benefit plan costs or lower investment returns on plan assets; changes in tax laws or treaties, or in their interpretation; changes in accounting assumptions that regulatory agencies, including the SEC, may require or that result from changes in the accounting rules or their application, which could result in an impact on earnings; the inability to implement our business strategies; and the inability to realize the expected benefits of strategic transactions.

As required by SEC rules, we have provided a reconciliation of the non-GAAP financial measures included in this presentation to the most directly comparable GAAP measures in materials on our website at www.verizon.com/about/investors

Overview | Data Center Colocation

Verizon Data Center Colocation provides a secure and dedicated environment where customers can host their internet servers, data networking, storage, security and voice equipment. Colocation customers have access to ultra-high-speed internet connectivity and the dedicated infrastructure necessary for their business to compete in today's marketplace with the flexibility to administer and access their own equipment. Our global Data Center locations offer a full range of connectivity services, Advanced Communications and Security services.

All of our data center's feature:

- **Space:** Ready built space with raised floor, protected by leakage detection , fire detection/suppression systems (VESDA)
- **Power:** Utility power feeds (i.e. 11 Kv), On-site generator(s), UPS, DC power plants, Building Management System monitoring (VESDA/BMS)
- **Cooling:** Chillers, CRAC.
- **Physical Security:** Manned security (in most facilities), CCTV, ACL control.

Product & Offering | Data Center Colocation

Offering

Secure and dedicated environment where customers can host their internet servers, data networking, storage, security and voice communication equipment

Direct access to ultra-high-speed Verizon IP Backhaul and dedicated infrastructure necessary

- Full range of Verizon services:
- SCI/SDI/PIP/IDS/SD WAN
 - Advanced communications/Contact Centers
 - Security services, Cyber Risk Monitoring/Detection/ Response



Benefits

Superior Network Performance

Reachability and Scalability

Security and Stability

Reliability

Commitment spend service saving opportunities

Monitoring and Support

Service Components | Data Center Colocation

SPACE

- Cabinets, racks
- Caged/Cold Aisle Containment environments
- Square feet / meters
- Cooling

POWER & COOLING

- Circuit-based
- Demand – no longer available
- Ambient air cooling/Free Air Cooling (in some facilities)
- Heating, Ventilation, and Air Conditioning (HVAC/CRAC)

ADD-ON SERVICES

- Interconnect services/Inter-Facility connectivity/Cross-Connects
- Remote Hands (i.e. Subscription/On-Demand)
- On-Site Support (i.e. Rack & Stack/Audit support/Fault Diagnostic)

Advanced & Standard Colocation Services

Data Center Classification Attributes | Data Center Colocation

FACILITY		
Item	Standard	Advanced
Customer Hot-desking	No	Depends on site
Customer Break Room	No	Yes
On-site Fuel Capacity	Minimum one day reserved	Minimum 2 days reserved
On-site work area	N/A	Yes
Manned Security	No	Yes
CCTV	Yes	Yes
Redundancy & Resiliency (N+1)	Depends on site	Yes
Remote Hands Support (24 x 7)	No	Yes



Data Center Classification Attributes | Data Center Colocation

COMMERCIAL		
Item	Standard	Advanced
Services	Colocation and Networks	Colocation and Networks
Carrier Neutral	Verizon plus On-Site Carriers	Verizon plus On-Site Carriers
Access	24/7 via Access Control List	24/7 via Access Control List
Cross-Connect	Available upon request	Available upon request
SSAE SOC Audit	No	Yes
ISO 27001 Certification	No	Depends on site
Tech Support Response Targets	4 hours	2 to 4 Hours



Cage, Cabinet and CAC | Data Center Colocation

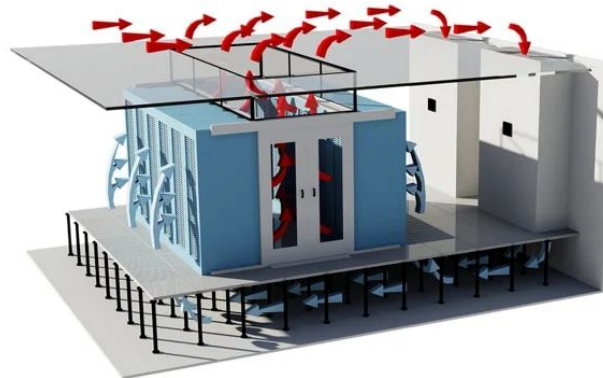
The colocation provider will add a **Cage** (metal wire enclosure) around the customer's data center rack. The cage is used as an extra level of security and supports the specific requirements of deployment. This option is ideal for companies that require a higher level of security or must comply with certain regulations.

Cold Aisle Containment isolates the cooled supply air from the **CRAC** units within direct proximity of the air intake of critical equipment. An enormous amount of energy is used every day to maintain an acceptable intake temperature to the Colocation environment.

A **Server Cabinet** is a structure that is designed specifically to house equipment including routers, switches, hubs, and servers. The rack makes it possible to securely hold multiple pieces of equipment in a single cabinet.



Caged environment



Cold Aisle Containment



Cabinet



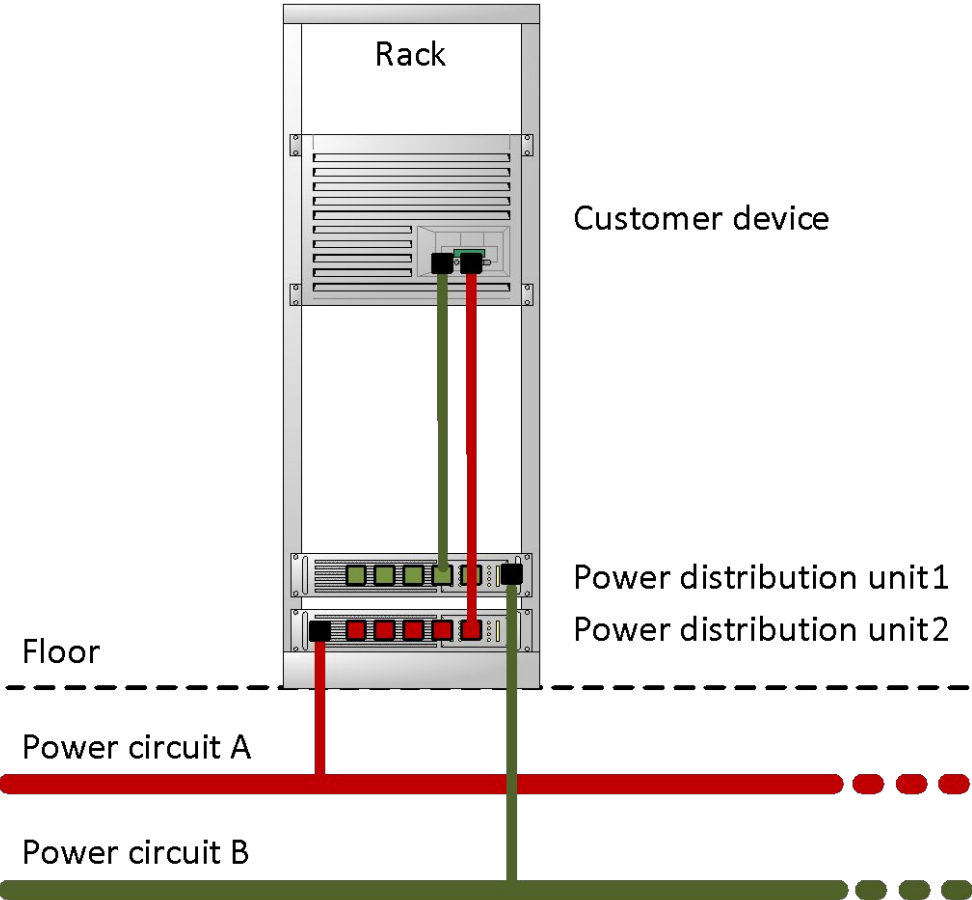
2 post Racks

Power Feed Options | Data Center Colocation



North America	Asia-Pacific	EMEA
120v AC SP	Australia	230v AC, SP
- 20 amp	230v AC, SP	- 16 amp
- 30 amp	- 16 amp	- 25 amp
- 60 amp	- 32 amp	- 32 amp
208v AC, SP	Hong Kong	400v AC, 3P
- 20 amp	220v AC, SP	- 16 amp
- 30 amp	- 16 amp	- 32 amp
- 60 amp	- 32 amp	
208v AC, 3 Phase	Singapore	Istanbul
- 20 amp	230v AC, SP	220v AC, SP
- 30 amp	- 16 amp	- 15 amp
- 60 amp	- 32 amp	- 20 amp
DC -48v	Japan	- 30 amp
- 20 amp/30 Amp/50 Amp/60 Amp/80 Amp/100 Amp/120 Amp	100v AC, SP	
	- 20 amp	DC -48v
	230v AC, SP	- 20 amp/30 Amp/50 Amp/60 Amp/80 Amp/100 Amp/120 Amp
	- 16 amp	
	- 32 amp	
	DC -48v	
	- 20 amp/30 Amp/50 Amp/60 Amp/80 Amp/100 Amp/120 Amp	

Power Distribution Unit (PDU) | Data Center Colocation



Depending on the requirements of the customer, one or two power circuits enter the rack via holes in the floor. Each power circuit gets terminated on a Power Distribution Unit (PDU). A power distribution unit (PDU) or “power bar” is a device fitted with multiple power sockets used to distribute power within a rack. It is connected to one of the power circuits and transfers the current to more common outputs. Mounting options depend on the model of the PDU and can be horizontal, vertical, in the front, at the back, etc. Switched/Intelligent PDUs have additional features, including remote power monitoring and power state control. Rack PDUs are typically categorized as “basic,” “metered” or “switched.” The primary difference in features are:

Feature	Basic PDU	Metered PDU	Switched PDU
Distribute power	✓	✓	✓
Allow power monitoring over network	N/A	✓	✓
Power state control over network	N/A	N/A	✓

Power Distribution Unit (PDU) | Data Center Colocation

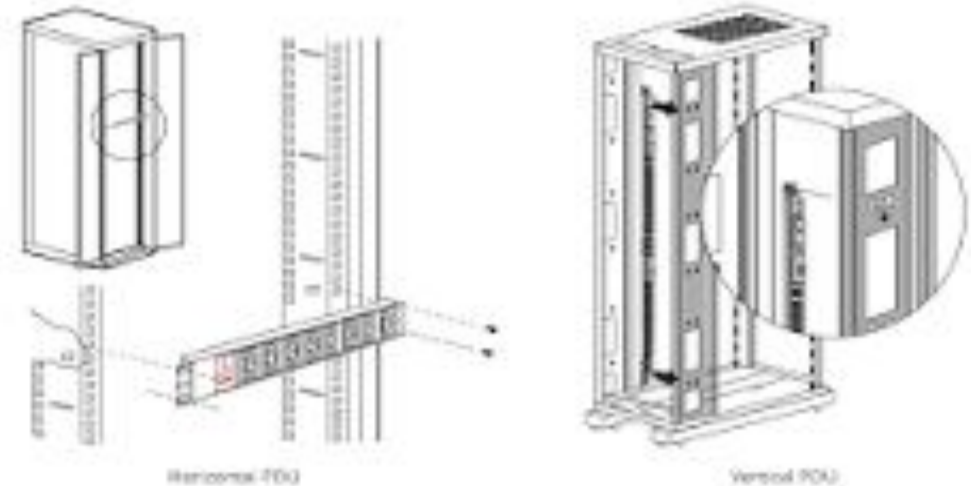
3 type of PDUs are most commonly used, typical 10 to 24 ways, C13/C19 type of outlets, Vertical or Horizontal mount

- Generic/Basic
- Metered
- Switched/Intelligent

Horizontal Mount PDUs



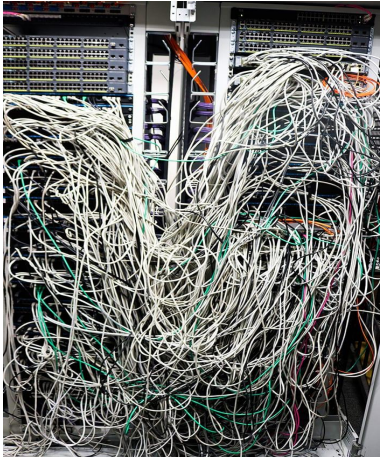
Vertical Mount PDU



Structured cabling | Data Center Colocation

Structured cabling is an organized approach to a cabling infrastructure. In a structured cabling system, a series of patch panels and trunks are used to create a structure that allows for hardware ports to be connected to a patch panel at the top of the rack.

That patch panel is then connected to another patch panel via a trunk (multi-fiber assembly designed for use in conveyance) in the MDA (Main Distribution Area). The MDA is the key aspect of structured cabling. This is where all the MAC's (Moves, Adds, and Changes) can be made with short length patch cords.



NOTE: Structured Cabling is offered at the customer's space, and a "Homerun" is used to connect one or more spaces owned by the same customer.

Remote Hands – On-site Support | Data Center Colocation

Remote Hands is a service to assist customers that need remote access to their equipment for performing simple troubleshooting or maintenance tasks. Remote Hands service includes the most basic activities of Verizon's staff, carried out with hands and eyes, that do not involve the use of tools or equipment.

Remote Hands service scope:

- Power cycling (turning equipment on and off)
- Toggling a switch; pushing buttons
- Securing cabling to connections
- Observing, describing or reporting on indicators or display information on equipment or consoles
- Basic observation and reporting about the environment in the Data
- Media management
- Tape rotation and media storage



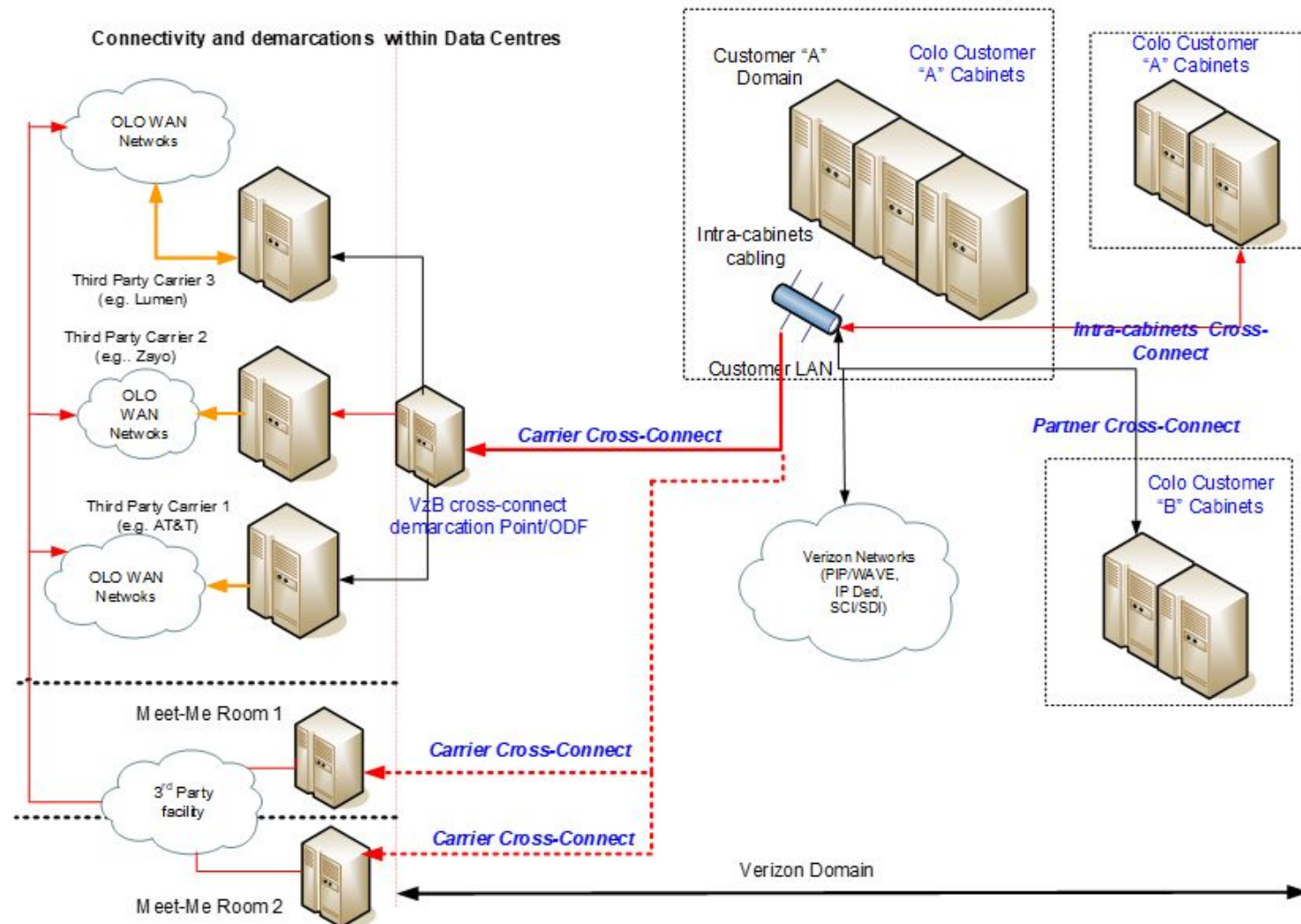
Remote Hands service **DOES NOT** include:

- Any service requiring a tool or diagnostic equipment
- Opening equipment
- OS patching/configuration
- Internal circuit modules replacement (i.e. motherboard, memory modules, interface modules)
- Movement of connected devices

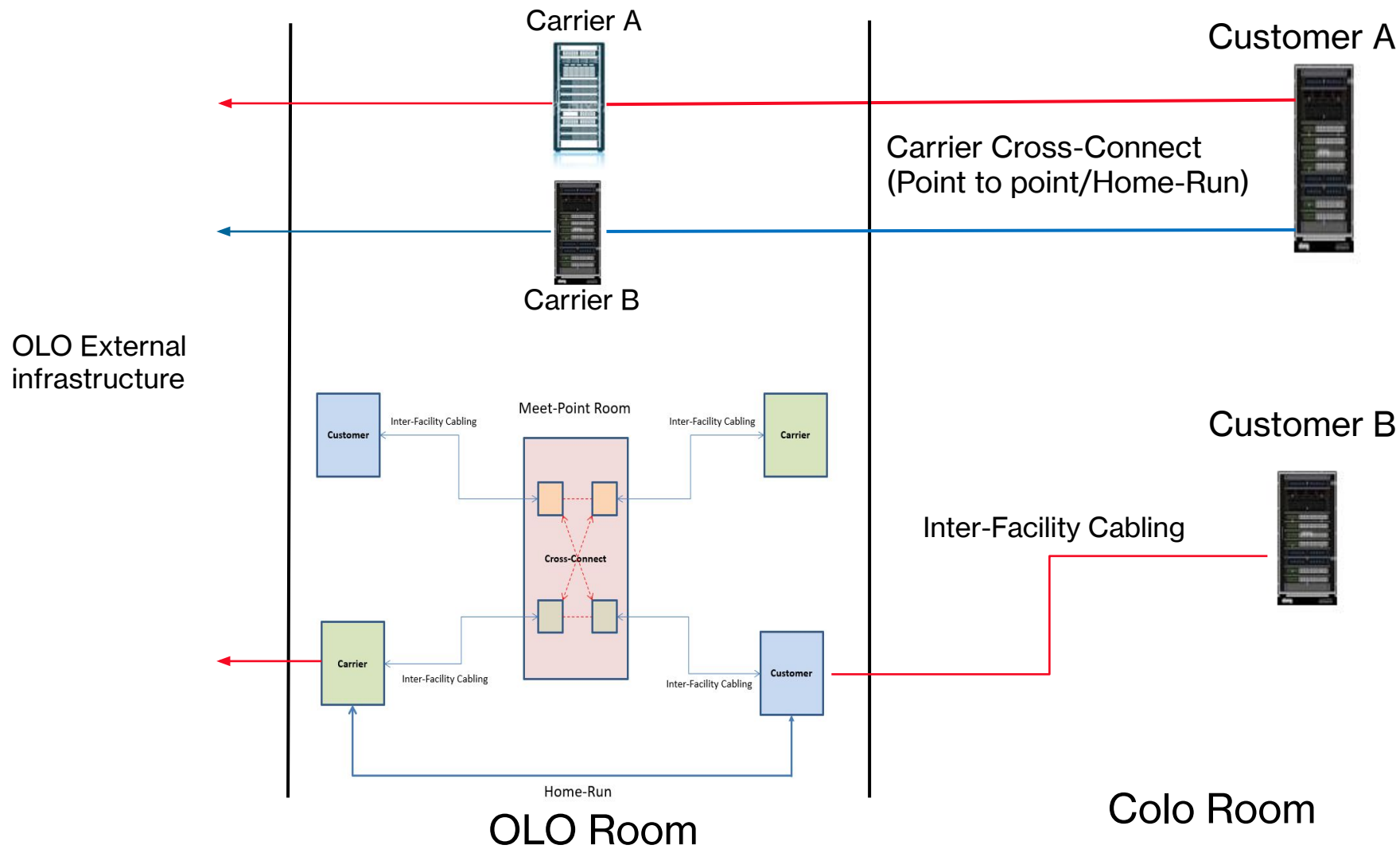
Carrier Neutrality & Networking

Cross Connects & IFC | Data Center Colocation

Typical Verizon Legacy Data Center Cross-Connect



Cross-Connect – Third-Party Carriers | Data Center Colocation



Compliance

PCI DSS Compliance

The PCI DSS (Payment Card Industry Data Security Standard) is an information security standard designed to reduce payment card fraud by increasing security controls around cardholder data. The Standard is a result of a collaboration between the major payment brands and is administered by the PCI SSC (Payment Card Industry Security Standards Council).

The latest iteration of the PCI DSS – version 4.0 – was released at the end of March 2022.

HIPAA

The Health Insurance Portability and Accountability Act (HIPAA) defines the security and privacy regulations required to protect sensitive patient health information. Specifically, the Act addresses requirements for handling protected health information (PHI) and electronic protected health information (ePHI). All companies operating in the healthcare industry in the U.S. must comply with HIPAA regulations. This includes business partners such as cloud service providers who process ePHI for healthcare companies.

- PHI is only accessed by authorized parties.
- Patients have access to copies of their personal records upon request.
- Covered entities safeguard PHI through reasonable physical, administrative, and technical measures.
- Covered entities promptly report and resolve any breach of security.

Positioning Data Center Colocation Services

Verizon Positioning | Data Center Colocation (Physical)



Physical	Customer In-house	Verizon Colocation Service offering
Redundant main and backup power, cooling	In most cases either unavailable or available after expensive fit-out.	Available in all Verizon data centers.
Physical security (cameras, keycards, guards)	Physical security possible at considerable investments.	Available in most if not all of Verizon data centers.
Network	Access tail circuits required to connect to a network.	All data centers are on-net, unlimited and redundant connectivity available.
Travel	In house, no travel.	Travel to colo facility if a problem cannot be solved over the network.
Office space	Computer rooms use up valuable office space.	No need to use office space for computer equipment.

Verizon Positioning | Data Center Colocation (Staff)



Staff	Customer In-house	Verizon Colocation Service offering
Knowledge and training requirements	Broad expertise required: infrastructure, server hardware, OS, applications	Server hardware.
Staff locations	Large central team for infrastructure, servers and OS.	Operations staff close to colo facilities.
Hiring staff	Sufficient potential employees with the right skills should be available in the central location.	Sufficient potential employees with the right skills should be available in the central location.

Verizon Positioning | Data Center Colocation (Financial)



Financial	Customer In-house	Verizon Colocation Service offering
Direct costs	Low, uses existing facilities and equipment.	Medium, a new environment needs to be built in a data center. Monthly rent charges for space and power.
Hidden costs	Very high. Investment in infrastructure required. More staff with diverse skills required. Lower quality infrastructure can result in high cost of downtime.	High. More staff with diverse skills required. Higher cost for travel. Lack of SLA and staff on-site can result in high cost of downtime.

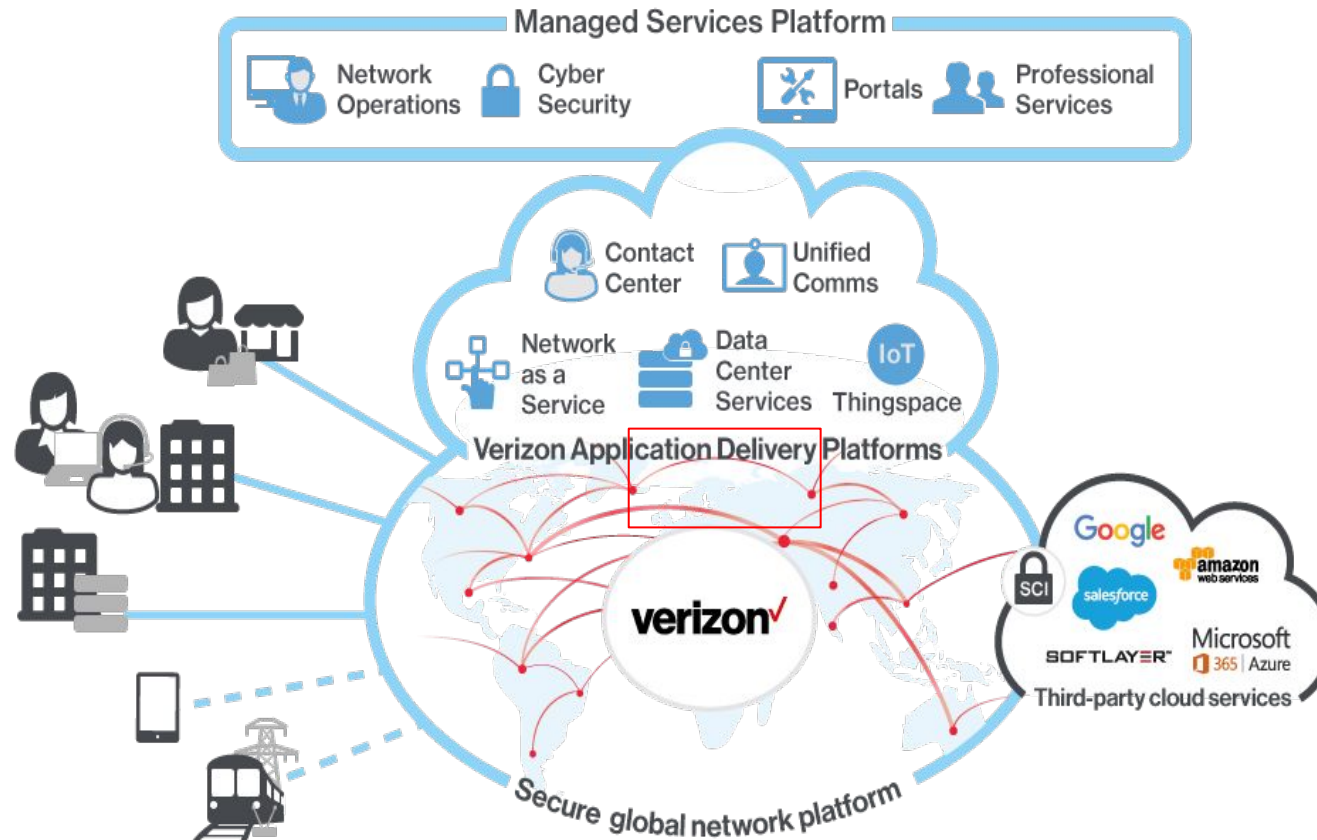
Verizon Positioning | Data Center Colocation (IT Equipment)



IT equipment	Customer In-house	Verizon Colocation Service offering
Hardware brands and models	Any brand or model is possible, even older systems.	Any brand or model is possible, even older systems.
Support contracts or in-house spares required	All hardware should have a support contract or spares available on site.	All hardware should have a support contract or spares available on site.
Licenses	Most licenses need to be purchased. New OS versions require additional investment.	Most licenses need to be purchased. New OS versions require additional investment.

Data Center Colocation Target Market

The Bigger Picture | Data Center Colocation



Connecting business Simply. Securely. Reliably.

Verizon Colocation: Use Cases and Target Markets | Data Center Colocation

	WHOLESALE	BUSINESS MARKETS	ENTERPRISE
Use Case	A customers that need to connect to the Verizon network, extending their network reachability	Larger Business Markets customers that need low cost space and power with connectivity to VZ and Cloud Providers via SCI/SDI	A distributed model splits a piece of work into micro-tasks that can be distributed to a large and geographically diverse crowd, allowing for rapid global data collection and insight generation
Facility Type	Any VZ colocation site can be suitable for wholesale	Focus on Advanced Data Centers	Focus on Advanced Data Centers <i>Note: Equinix Resale is a better fit for Global Enterprise and Public Sector customers</i>

Challenges impacting business growth | Data Center Colocation

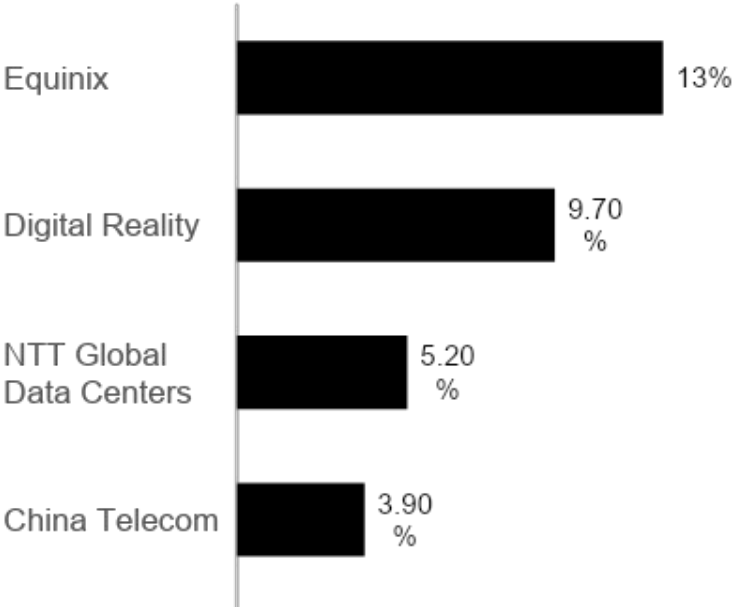
- Expanding data storage and compute requirements
- Expansion into global markets
- Brand protection
- Fast, consistent web and digital experiences
- Physical space limitations and security
- Compliance & regulatory
- Not enough IT resources
- Access to leading technology providers (i.e. Cloud Service Providers)



How can your team get there quickly and still control costs?

Colocation Market Leaders | Data Center Colocation

Top Vendor Market ShareBy Colocation Revenue, 2019



	 EQUINIX	 DIGITAL REALTY	 NTT	 中国电信 CHINA TELECOM
Revenue (2019)	\$4.0B	\$3.0B	\$1.6B	\$1.2B
Key Region of Operation	US	US	APAC	China
Cloud	✓	✓		✓
Cross Connect / Direct Interconnect	✓			
Data Center	✓	✓	✓	✓
Interconnection		✓	✓	
Internet/ Connectivity	✓			✓
Network	✓		✓	✓

Source: Arizton Advisory & Intelligence, Data Center Colocation Market Report

Colocation Market Leaders | Data Center Colocation

Macroeconomic factors continued to impact the colocation market in 4Q22, causing average year-to-year revenue growth to decelerate over 3% points, to 16.9%. The deceleration can be partly attributed to elongated sales cycles, particularly on the wholesale side, and a slight dip in net-new leasing activity in retail. Nonetheless, vendors like Amazon Web Services (AWS), Microsoft, Google Cloud and IBM are increasing their data center capacity to effectively meet customer demand, which will drive long-term growth in the wholesale market, while the retail space stands to benefit from broad-based digital transformation and emerging workloads, such as AI and edge computing.

Market Trends and Drivers

Near Term:

- Power and lease price increases
- Government regulations surrounding data center zoning, sustainability and data privacy
- Enterprises slow IT spending levels in an inflationary environment

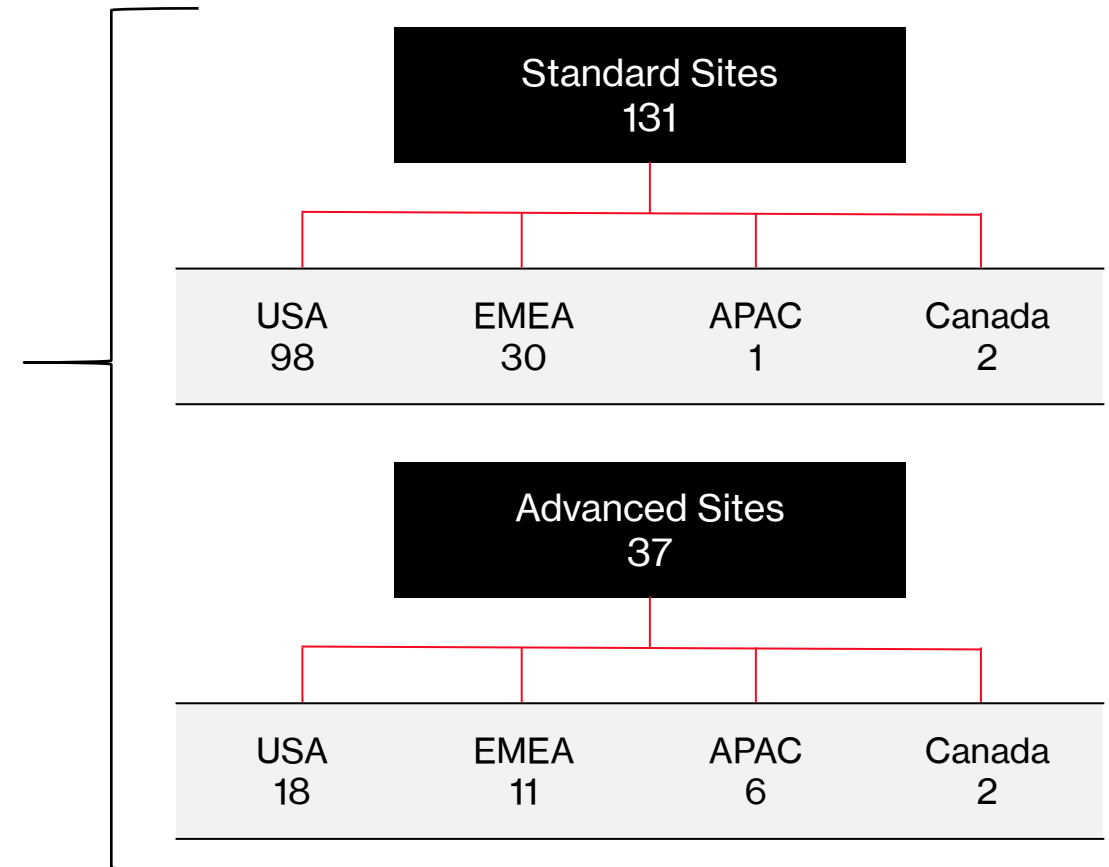
Mid Term to Long Term:

- Infringement from hyperscale customers as they build their own data centers to meet cloud demand
- Market consolidation could potentially limit acquisition opportunities
- Sustainability and the need to support enterprise environmental, social and governance (ESG) agendas

Verizon Colocation: Summary | Data Center Colocation

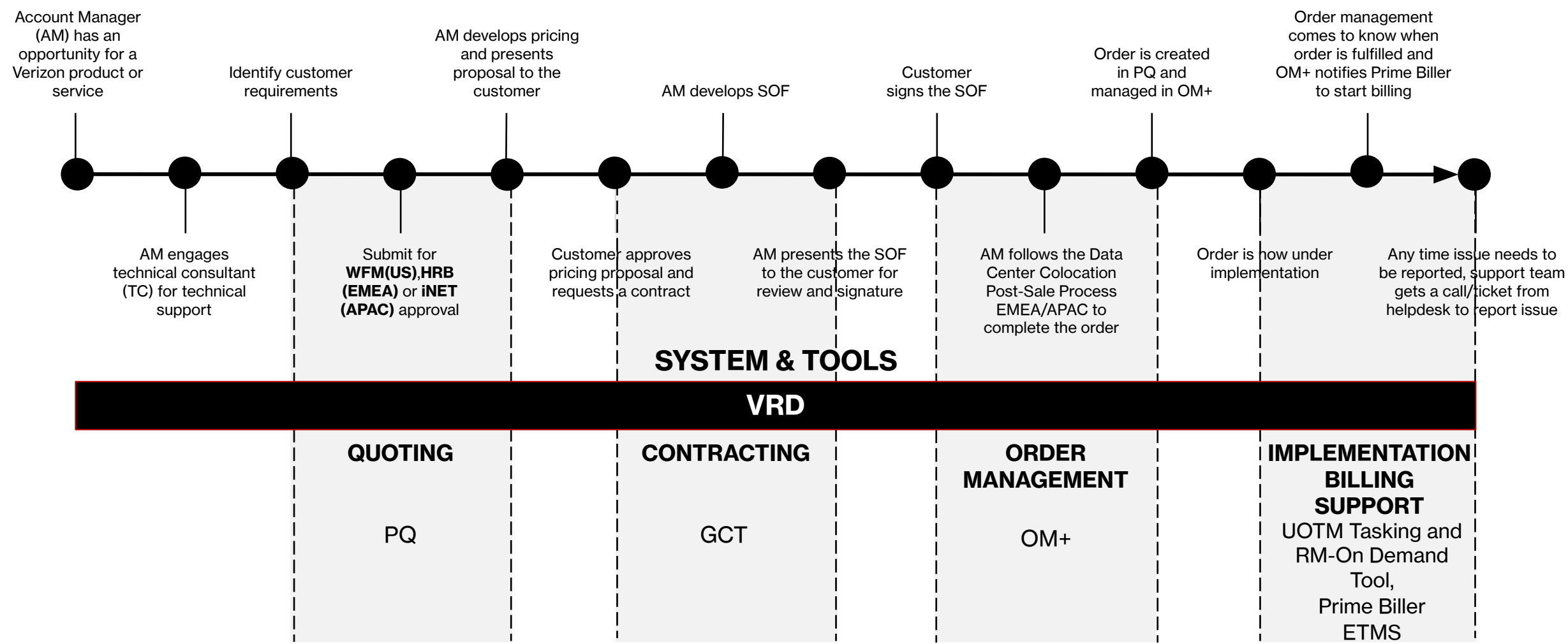
Verizon's Colocation Offering:

- **\$150M** in annual revenue.
- **~\$250M** in Network/Product pull-through revenue associated with Colocation service.
- **168** sites around the world:
 - **52** International sites
 - **116** US Domestic sites – including some of the fXO sites
 - **Standard sites** are carrier-grade facilities and provide direct access to the Verizon regional/global IP backbone
 - **Advanced sites** are designed to conventional data center standards that allow us to offer SLAs of 100% on power availability
- Colocation is the **only remaining sellable product from the original ITS product portfolio**



Data Center Colocation Process & Support

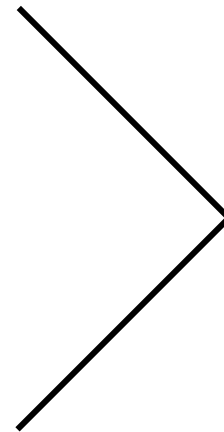
Data Center Colocation Sales & Support Process | Data Center Colocation



If we cannot offer colocation from a Verizon site, we may have the option to deliver the service through our resale partner Equinix

Reselling third party colocation space can only be offered if:

- Verizon Data Center cannot be used (i.e. capacity availability, technical requirements)
- There is a substantial amount of pull-through service on top of the colocation product
- The customer accepts the contract terms Equinix to Verizon and Verizon to customer to be fully back-to-back



For available sites check:
<https://www.equinix.com>

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Colocation on InfoManager

- [Overview](#)
- [Pre-Sales Process](#)
- [Post-Sales Process](#)
- [Pricing](#)
- [Colocation Service Attachment](#)
- [Verizon Colocation Service Description](#)
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