



MECKLENBURG COUNTY
North Carolina

Data Centers 101:

Introduction & Overview

5/19/2026 – Board of County Commissioners Meeting



PURPOSE

This presentation is in response to the BOCC requesting a general overview and introduction to data centers.

This presentation is based on national trends, research, and consultation, and is designed to serve as a resource for the board to have a baseline level of knowledge into the topic.

AGENDA



Overview & Introduction to Data Centers



Snapshot of Data Centers in
Mecklenburg County



County's Role



WHAT IS A DATA CENTER?

A **data center** is a secure warehouse facility that organizations use to house their critical computer systems, data storage, and network infrastructure needed to run digital systems.

“**Data center**” refers to the physical space that contains these systems within and can greatly vary in size and scale.

WHAT IS INSIDE A DATA CENTER?

Data centers can contain an extensive series of equipment, including*:

- Computer servers
- Storage systems (ex. Hard drives)
- Extensive cabling
- Power systems (ex. Generators)
- Networking gear (routers, etc.)
- Cooling units (HVAC/Water)
- Security systems & access controls
- Racks and cabinets

*See appendix for more pictures



WHAT DO DATA CENTERS DO?

Data centers run 24/7/365 for various purposes, but commonly for “cloud” purposes, or for data storage & backup.



Cloud-based computer applications are housed on servers in data centers.

- *By 2026, it is estimated that 95% of all new internet applications are expected to be cloud-based, up from 30% in 2021.*



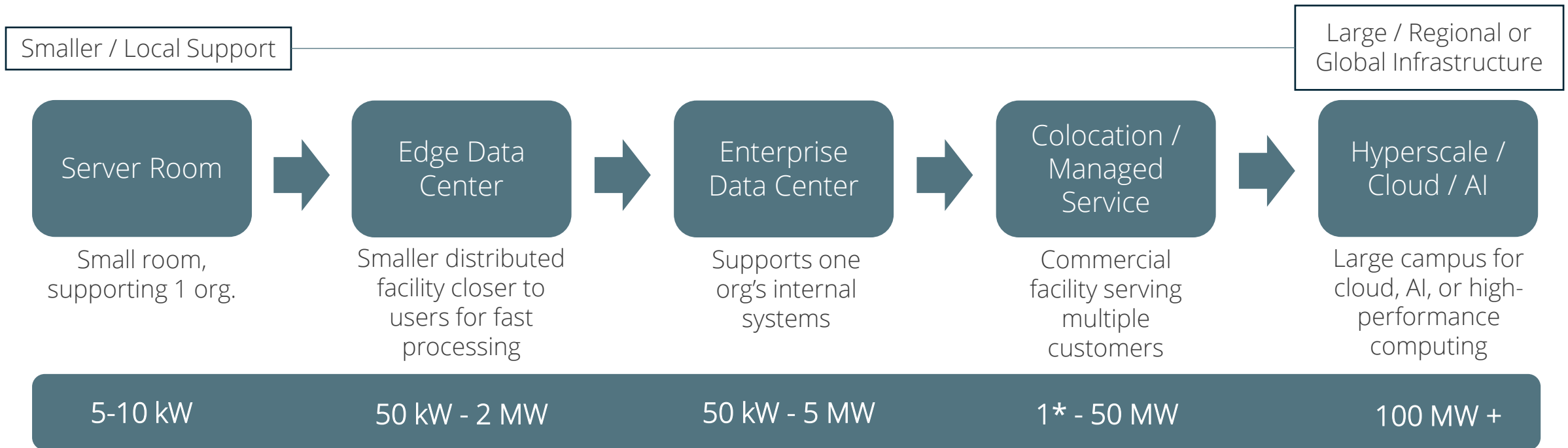
Companies may have their own data centers or rent space in a data center to store their corporate data or for data backups.

- *~60% of all global corporate data is stored in a data center.*

Data Storage & Backup

WHAT ARE THE TYPES OF DATA CENTERS?

Data center size is measured by their maximum power capacity, and the physical size and scale of data centers can vary greatly.



* For reference – 1MW = 1,000,000 Watts. 100 MW = power equivalent of ~80,000 average sized houses.

WHERE DO DATA CENTERS EXIST?

The physical footprint and location strategies of new, larger data centers are rapidly changing.

THEN

For decades, larger data centers have been built in and around industrial parks, away from residential areas and the public.



WHAT HAPPENED?

- Lack of available acreage around industrial parks.
- Lack of electrical grid capacity keeping up with demand & evolution.
- Expectation of lightning-fast computing speed requiring closer proximity.



NOW

Developers actively seeking to rezone land that borders residential neighborhoods, agricultural land, and suburban communities.

WHERE DO DATA CENTERS EXIST? (cont'd)

95%

of new internet applications expected to be cloud based by 2026 (Gartner).



Rapid Technological Advancements

1. Artificial Intelligence (AI) Boom
2. "Internet of Things" & Smart Cities
3. 5G Network expansion
4. Streaming & Immersive media growth
5. Widespread digital transformations across all sectors



Surge in
Data
Centers

WHERE DO DATA CENTERS EXIST? (cont'd)

The rapid technological advancements, notably in Artificial Intelligence, is increasing demand for companies to build more, larger, and more intensive data centers.

Colocation /
Managed
Service

Beginning to seek development into the **edges of suburban neighborhoods** where fiber-optic networks and power substations are accessible, but land is more cost efficient.

Hyperscale /
Cloud / AI

Beginning to seek development deep into **rural, agricultural, and underdeveloped** land due to expansive number of acres required.

HOW ARE LARGE DATA CENTERS DIFFERENT TODAY?

Across the globe, the rapid evolution of AI has fundamentally changed how some larger data centers are beginning to be designed and operate.

	Legacy Data Centers	AI Data Centers
Work	Cloud applications, data storage	Training AI models
Cooling	Air – giant fans	Liquid cooling – chilled water systems
Electricity	Enough to power a neighborhood	Enough to power a city
Size	One big building	A campus

HOW ARE LARGE DATA CENTERS DIFFERENT TODAY?

AI is driving demand

- AI growth is increasing demand for high-density facilities
- Distance from user affects speed

Power & land is a main constraint

- Adequate power availability and land is a key constraint for large facilities

Cooling & water needs are rising

- Due to heat output, cooling demand is rising
- AI workloads are much hotter, significantly increasing water use

Facilities are adapting

- More sites may pursue alternative power sources or build their own power substations
- Some shifting to more self-contained resource loops.

Key takeaway – Data center growth is accelerating, while power, cooling, water, and supply chain constraints shape where and how facilities can be built.

WHAT ARE THE COMMON TALKING POINTS?

Significant research exists around both commonly cited talking points for and against data centers.

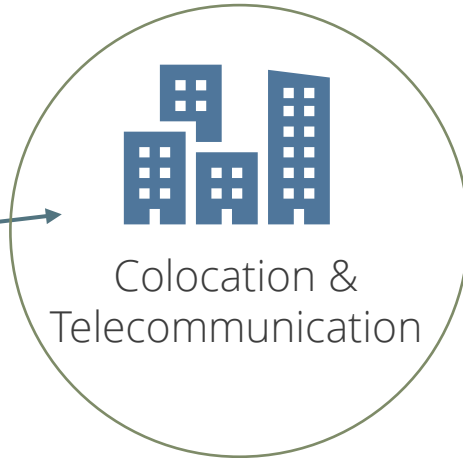
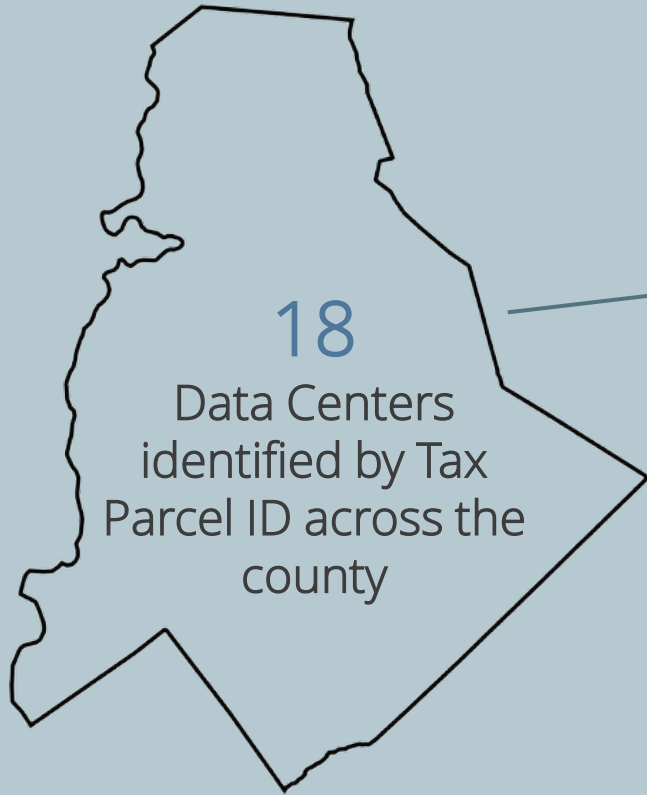
PROPONENTS (for)

- Property tax generation
- Funding public services without the long-term strain
- Direct community investments (ex. Infrastructure upgrades)
- Job creation

CRITICS (against)

- Potential Environmental & health impacts (ex. Water consumption & noise pollution)
- Utility strain & rate hikes
- Lack of transparency due to Non-Disclosure Agreement (NDAs)
- Questionable return on tax incentives
- Land use discrepancies

DATA CENTERS IN MECKLENBURG COUNTY



Shared facilities, and those supporting telecommunications data transmission.

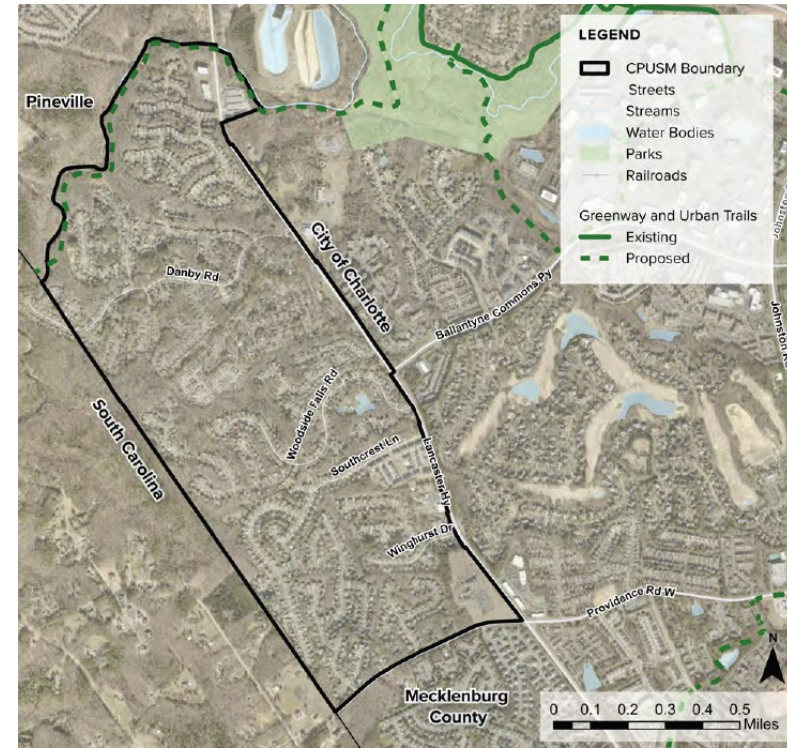
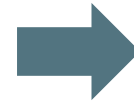
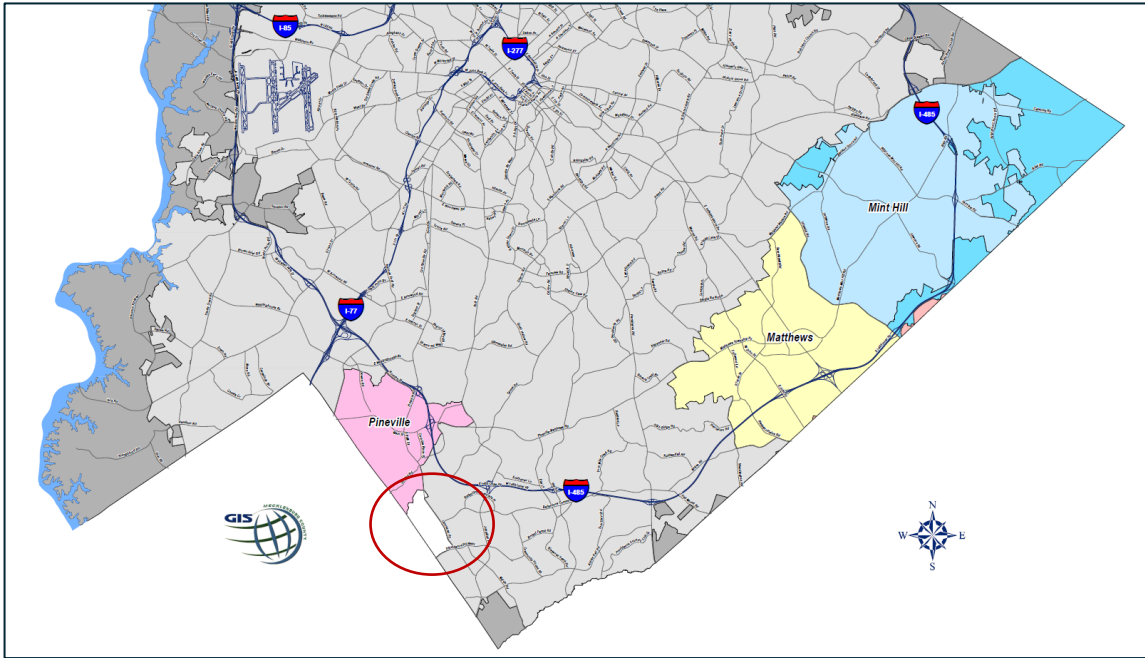


Supporting private, internal business needs.

COUNTY ROLE

Planning & Zoning in ETJs = authority of applicable cities & towns. Any unincorporated land remaining not within an ETJ = responsibility of counties.

Remaining unincorporated land in South Mecklenburg = ~1 sq. mile.



COUNTY ROLE

Land use guidance and planning for this ~1 sq. mile tract of land is accounted for in the adopted **Comprehensive Plan for Unincorporated South Mecklenburg (CPUSM)**.



COUNTY ROLE

Some of examples of engagement could include:

- Facilitating, or requesting county participation in conversations related to data centers with municipal partners as applicable.
- Fostering municipal agreements or partnerships related to the topic if interested.
- Considering data center, or technical Subject Matter Expertise when evaluating applicants for County Commission appointed planning board members to the Charlotte-Mecklenburg Planning Commission.

The strongest role of the county is engagement.



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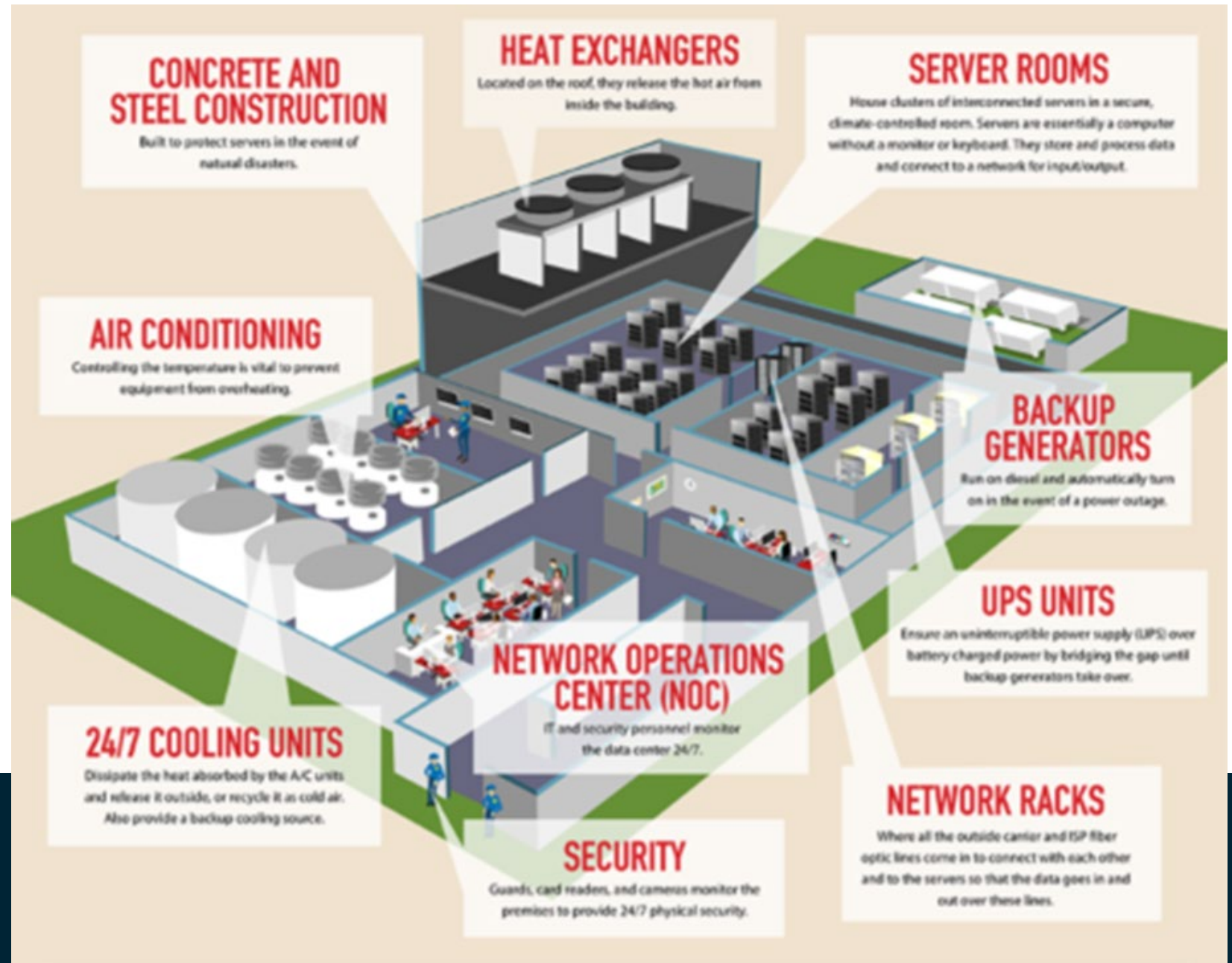
Thank You

Questions?

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APPENDIX A

Amount of equipment, size, and scale is greatly dependent on the type of data center.



APPENDIX A (cont'd)

Administrative and Support areas

- Computer Room
- Office Area
- Conference Rooms
- Shipping/Receiving Equipment



APPENDIX A (cont'd)

Electrical and Mechanical characteristics

- Power Units (PDUs)
- Uninterruptible Power (UPS)
- Generators
- HVAC



APPENDIX A (cont'd)

Fire & Security Systems

- Smoke Detection
- Sprinklers
- Access and perimeter control



APPENDIX A (cont'd)

Data Center Racks

- Servers
- Racks
- Cabling

