Data Centers

LUEPC

April 2025

What is a data center?

"A room, building, or facility that hosts IT infrastructure for building, running, and delivering applications and services, and for storing and managing the associated data."

(IBM)

Types of Data Centers

Enterprise/On-premise	Public Cloud	Edge/CoLocator
• Data center run by an organization for its own data, usually on the organization's premises	• Connected to multiple customers via the internet • Large public cloud providers include: Oracle, Amazon Web Services, Microsoft • Large to "Hyperscale" - sized between several 100k SF to millions of SF	• Small public cloud data center designed for, and located close to, specific customers. (Customer proximity improves overall performance.)

Edge CoLocator

Brightspeed (CenturyLink)

West Main St., Charlottesville

86k SF

(combination office and data center)

UVA Data Center Charlottesville (UVA)

12.5k SF

Opened 2011

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Enterprise/On-Premises

Carruthers Hall
Charlottesville (UVA)

6k SF

UVA Health

Inside newest building

The Globe Building St. Louis

720k SF total

150k SF in data centers (2 floors)

Hyperscale

Amazon

Loudoun County

Comarch

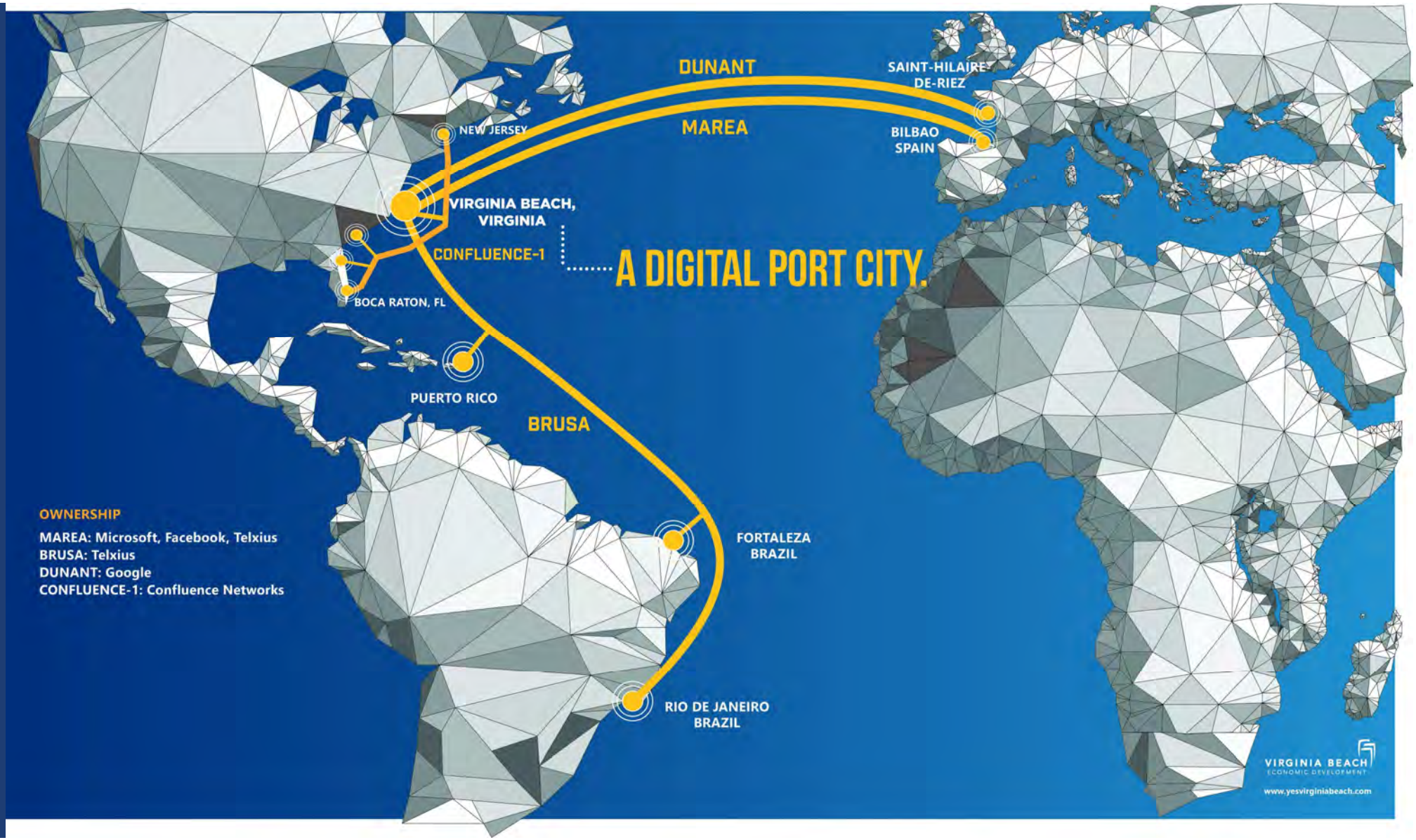
Prince William County

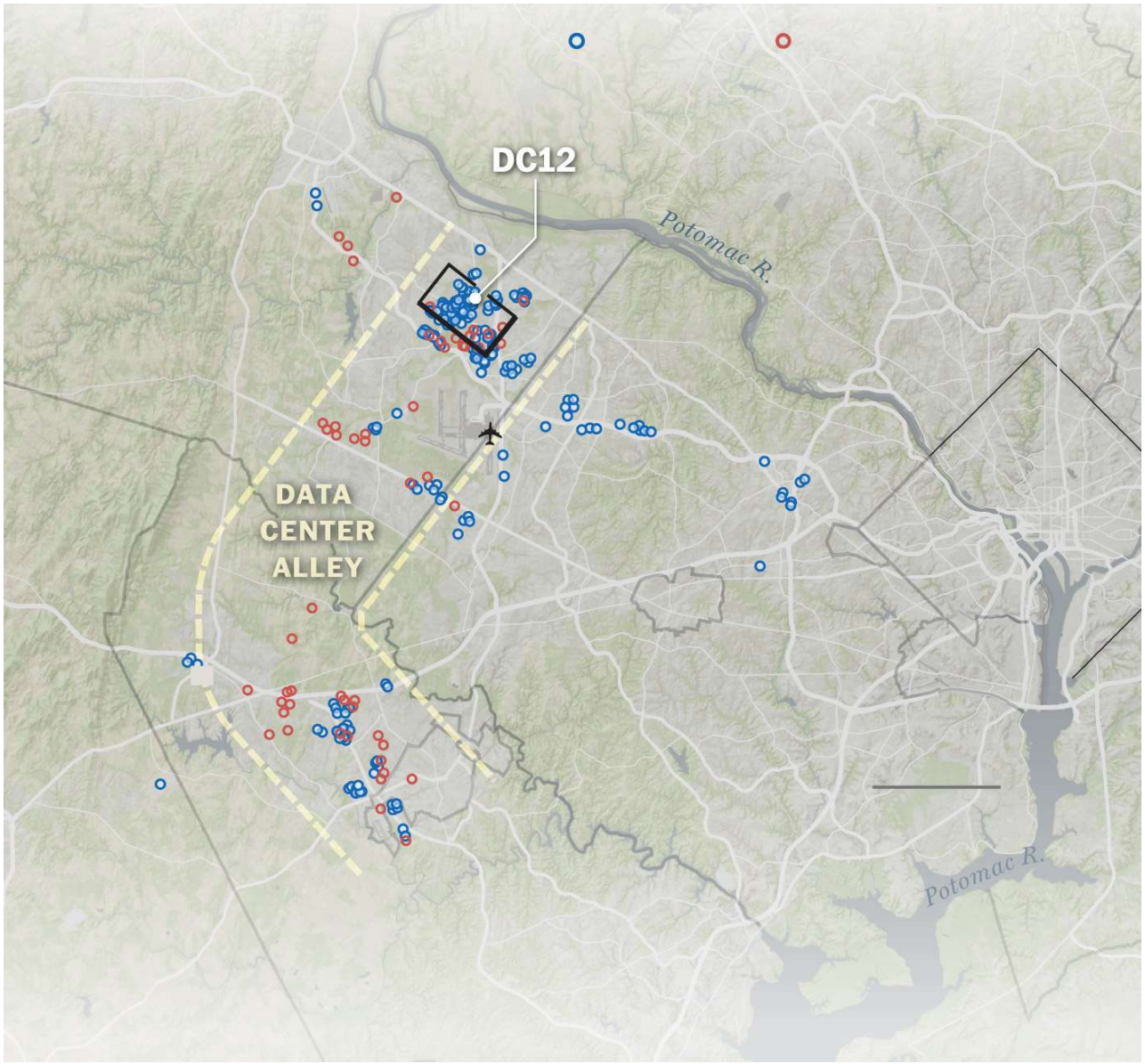
Meta / Facebook

Henrico County

Data Centers: Key Facts

- Growing demand
  - Global spending increased ~60% (2012 to 2023).
  - Construction forecasts show strong demand
- Size
  - Largest data center in US = 7.2 M SF
  - Smallest data centers = A few hundred SF
- Environmental Impacts
  - Energy: up to 50x the energy consumption per SF of commercial office space
  - Water: 0.48 gallons for every 1kWh energy consumed


DUNANT
MAREA
SAINT-HILAIRE-DE-RIEZ
BILBAO SPAIN
NEW JERSEY
VIRGINIA BEACH, VIRGINIA
CONFLUENCE-1
BOCA RATON, FL
PUERTO RICO
BRUSA
FORTALEZA BRAZIL
RIO DE JANEIRO BRAZIL
A DIGITAL PORT CITY.
OWNERSHIP
MAREA: Microsoft, Facebook, Telxius
BRUSA: Telxius
DUNANT: Google
CONFLUENCE-1: Confluence Networks
VIRGINIA BEACH
ECONOMIC DEVELOPMENT
www.yesvirginiabeach.com


DC12
Potomac R.
DATA
CENTER
ALLEY
Potomac R.

Regional Landscape

Regional Landscape

Louisa

- 1.7M SF data center campus on 153 acres
  - 7 data center buildings
  - 2 ancillary buildings
  - 1 administration building
  - 2 substations
  - All buildings 1-2 stories
- $11 B investment
- Estimated $25M in annual revenues
- Regulated with an overlay district with performance standards for neighbor impacts – buffers, noise

Culpeper

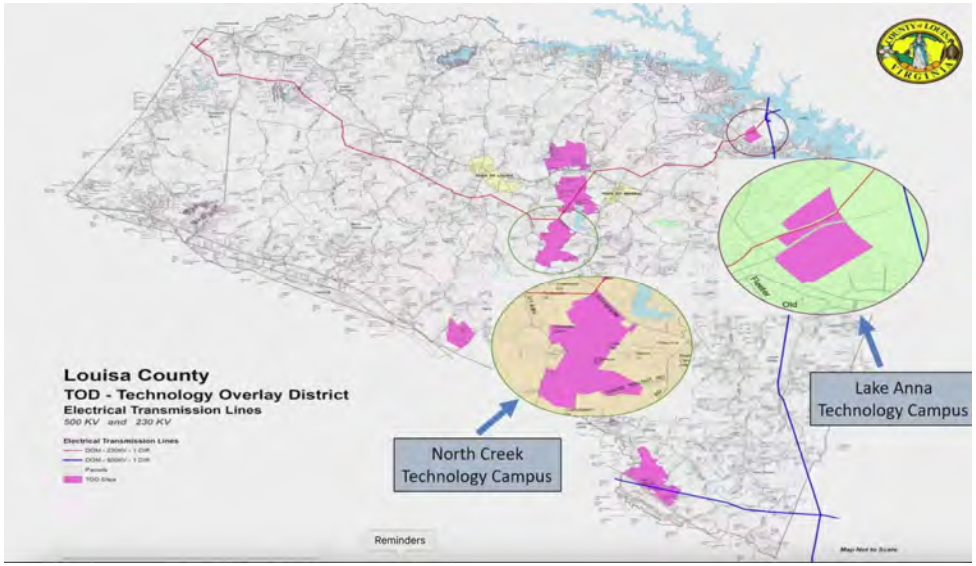
- Culpeper Tech Zone (CTZ)
- 690 acres / ~1 sq. mile
- 6 developers have committed to projects
  - Up to 4 stories
  - 1-4 M SF building sizes
  - 275 MW – 600 MW
  - $14-20M annual local revenues per project

Orange

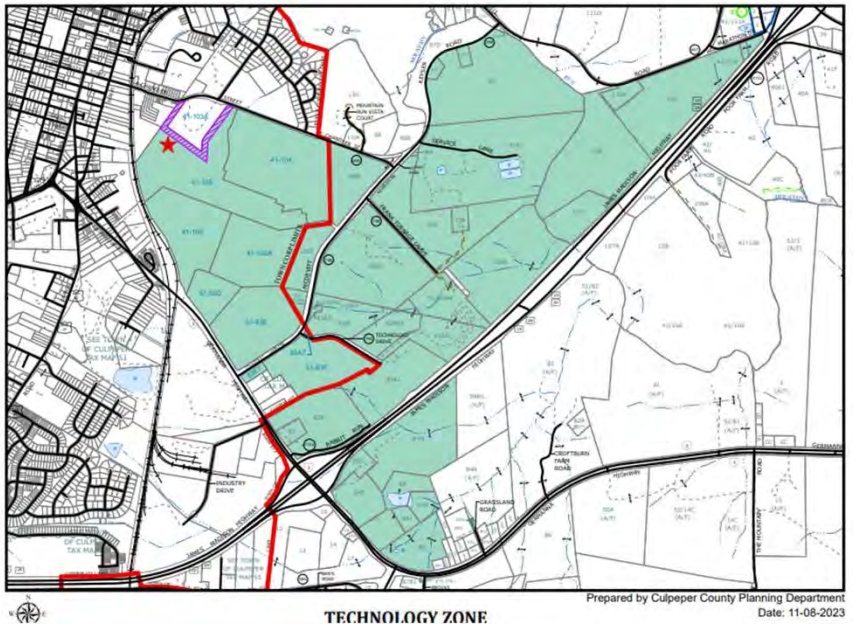
- Seeking to attract

Regional Landscape

Louisa



Culpeper



Hyperscale data centers: Impacts

- They generate substantial tax revenue, and skilled workforce jobs.
- There are state and federal strategies & incentives that promote them.

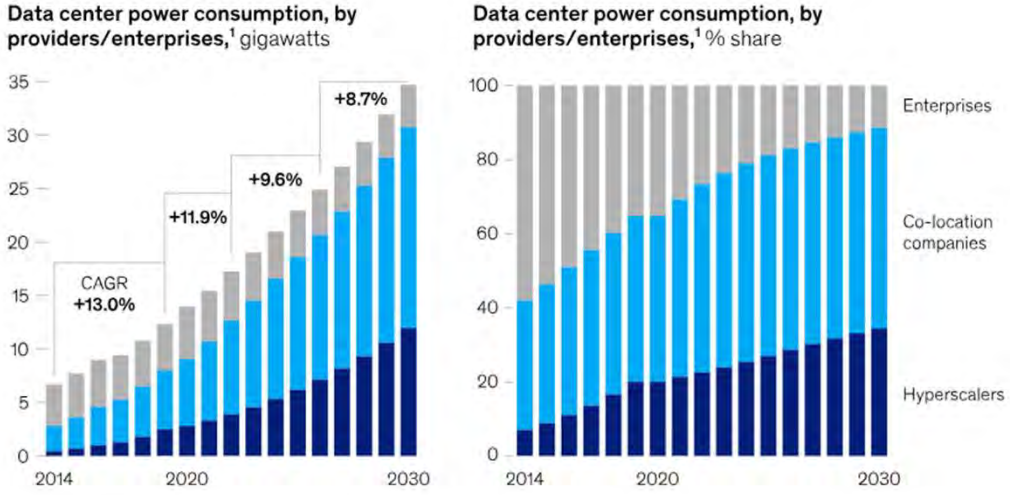
- They have community impacts not always covered by existing zoning regulations
  - Water consumption
  - Noise
  - Building design
  - Power consumption

Hyperscale data centers and power

Local governments in Virginia are not enabled to regulate power consumption.

Exhibit 1

US data center demand is forecast to grow by some 10 percent a year until 2030.



[1]Demand is measured by power consumption to reflect the number of servers a data center can house. Demand includes megawatts for storage, servers, and networks.

McKinsey & Company