

DATA CENTERS

Opportunities, Needs and Impacts

Speaking Today

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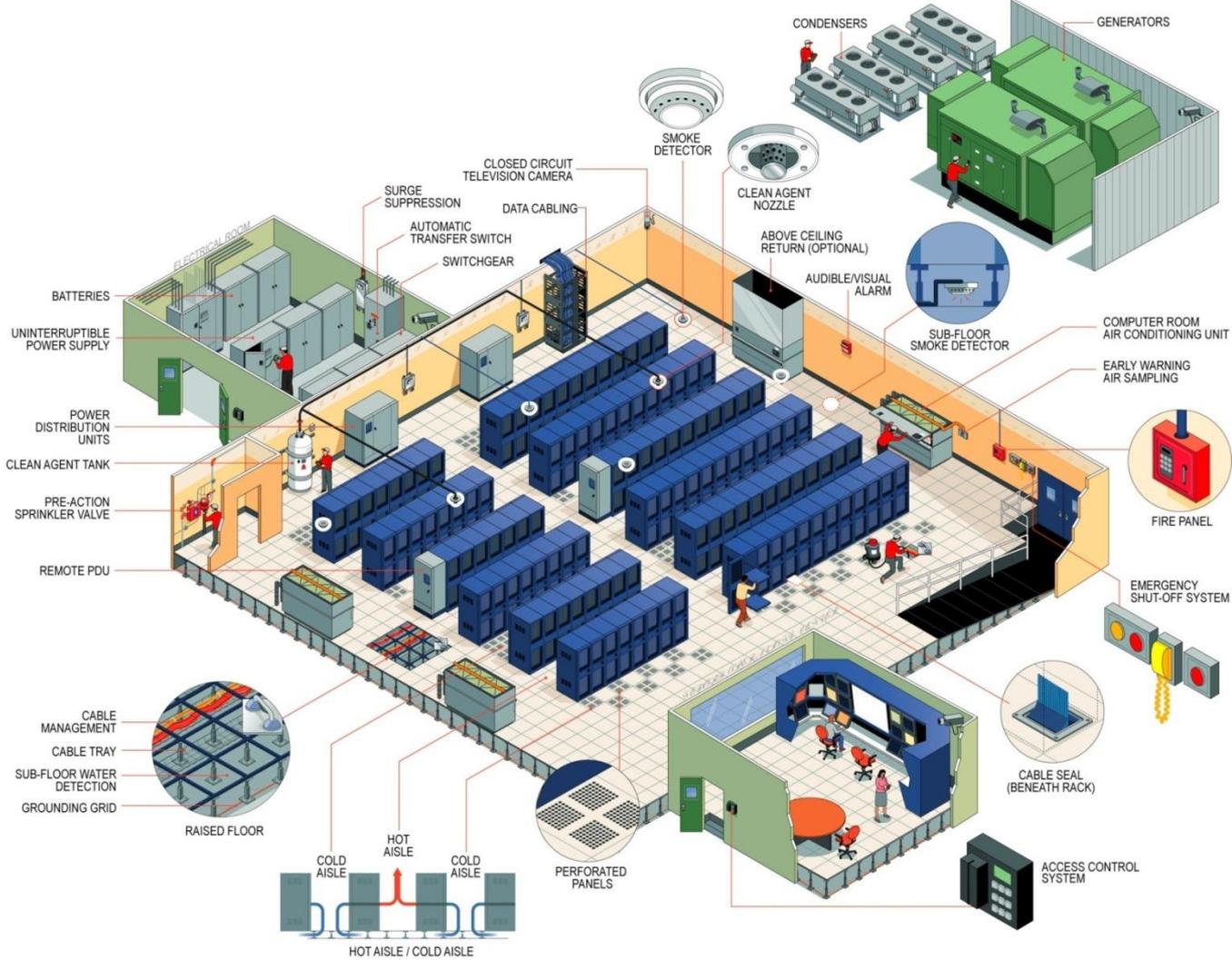
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Discussion Points for this Presentation

- The Data Center Market
- Data Center Site Selection Criteria
- Legislative Needs to Attract Data Centers
- What Other States are Doing
- Virginia Case Study – Impacts on Economy

What is a Data Center



The Data Center Market

- Nature of the global market
 - Owner Occupied Facilities.
 - Landlord Tenant Facilities - where the occupant is separate from the facility owner (i.e. Colo).
- Existing global capacity
 - At the end of 2019 existing colo inventory globally was well in excess of 6 Gigawatts (i.e. 6 Billion Watts or 1,000 MW) just taking into account US, Europe, and APAC, alone. That equates to approximately \$120 Billion capital investment – plus periodic refresh.
 - The total Owner Occupied inventory is hard to track due to owner confidentiality, but it is likely more than the colo inventory.
- The connected world is driving demand for more
 - 5G expansion, connected devices, AI, machine learning, driverless cars.
 - Most recently - the Work-at-Home movement

The "Hyperscalers" Drive the Market

CLOUD SERVICE PROVIDERS



INTERNET COMPANIES



EMERGING CSP/ INTERNET COMPANIES



Example - Microsoft Cloud Region Expansion

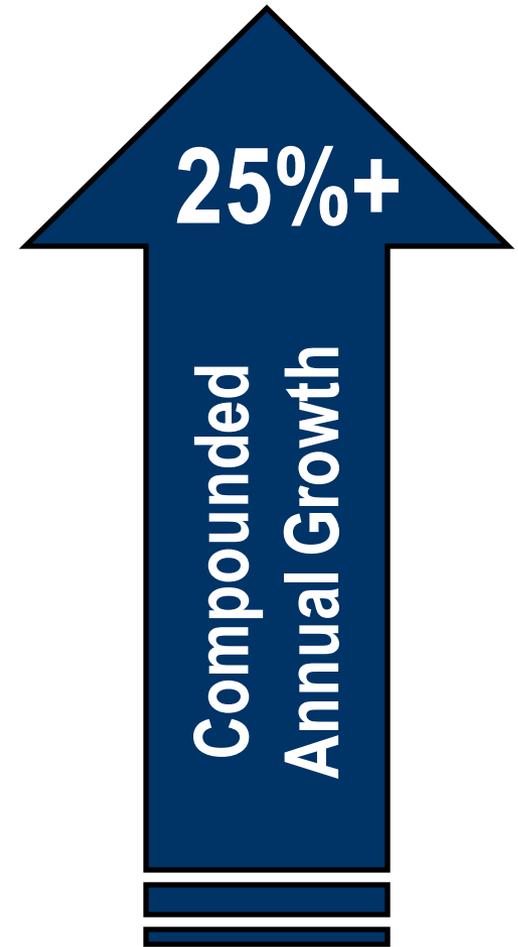
Microsoft has established 60+ cloud regions and recently announced new cloud regions in Mexico, Spain, Italy, Poland, Israel, Qatar, and New Zealand



Source: azure.microsoft.com 6.16.20

Data Center Construction is Booming

- Prior to COVID 19 - The data center construction sector was projected to experience a 25%+ compound annual growth rate over the next five years*.
- ***Since the COVID-19 demand has only increased:***
 - ***Zoom, Webex and Cisco have seen 100%+ increase demand.***
 - ***Network Operators have seen 20%-30%+ increase in demand for internet.***
- The virtual environment is here to stay and it has caused global demand for data centers to accelerate.

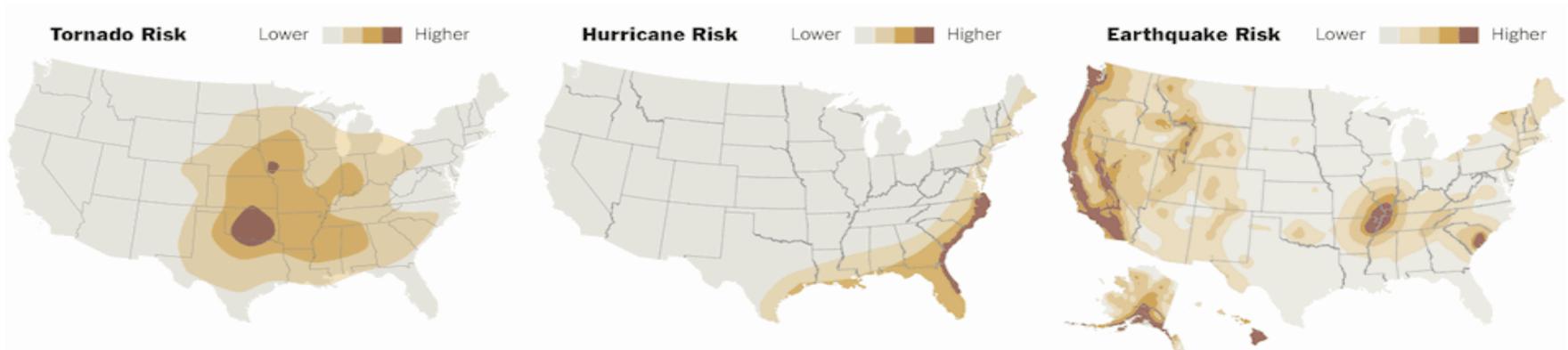


Data Center Site Selection Criteria

- ✓ Fiber Connectivity
- ✓ Latency
- ✓ Stable Climate
- ✓ Geo-Stability
- ✓ Educated Workforce

- ✓ Adequate Grid Power
- ✓ Low Power Price
- ✓ Renewables Access
- ✓ Infrastructure
- ✓ Other factors

✓ **Suitable Tax Framework**



Legislative Needs to Attract Data Centers

- The unique nature of a data center facility gives rise to a unique tax burden.
 - Very high costs per square foot for initial construction
 - Very high costs for equipment and business personal property
 - Need to account for refresh
 - Very high power usage - translates to high power costs
- Ideal tax framework includes program to mitigate the following:
 - Business personal property taxes on data center equipment & software
 - Real property taxes on unique building systems
 - Sales and use taxes on data center equipment & software
 - Sales and franchise taxes on power

What Other States are Doing

- Approximately 31 states have approved legislation intended to attract data centers to locate in their states.
- A few examples include: Arizona, Ohio, Indiana, Illinois, Georgia, Minnesota, Iowa, Florida, Nebraska, & Virginia.
- Legislation across the US addresses the unique tax burden of the data center by mitigating taxes on data center equipment, software, and power.

VA Case Study - Impact on Economy

- In 2018 the Virginia data center industry directly provided approximately:
 - 14,644 full-time-equivalent jobs with an average annual pay of \$126,000,
 - \$1.9 billion in associated pay and benefits, and
 - \$4.5 billion in economic output.
- In 2018 the total impact on Virginia from the data center industry was approximately:
 - 45,290 full-time-equivalent jobs,
 - \$3.5 billion in associated pay and benefits, and
 - \$10.1 billion in economic output.

In 2017, the data center tax program in VA generated \$1.09 of State tax revenue for every dollar that it exempted; and in 2016, the incentive was revenue neutral

Source: https://www.nvtc.org/NVTC/Insights/Resource_Library_Docs/2020_NVTC_Data_Center_Report.aspx



Thank you