

What are Datacenters?

And why we even need so many of them?

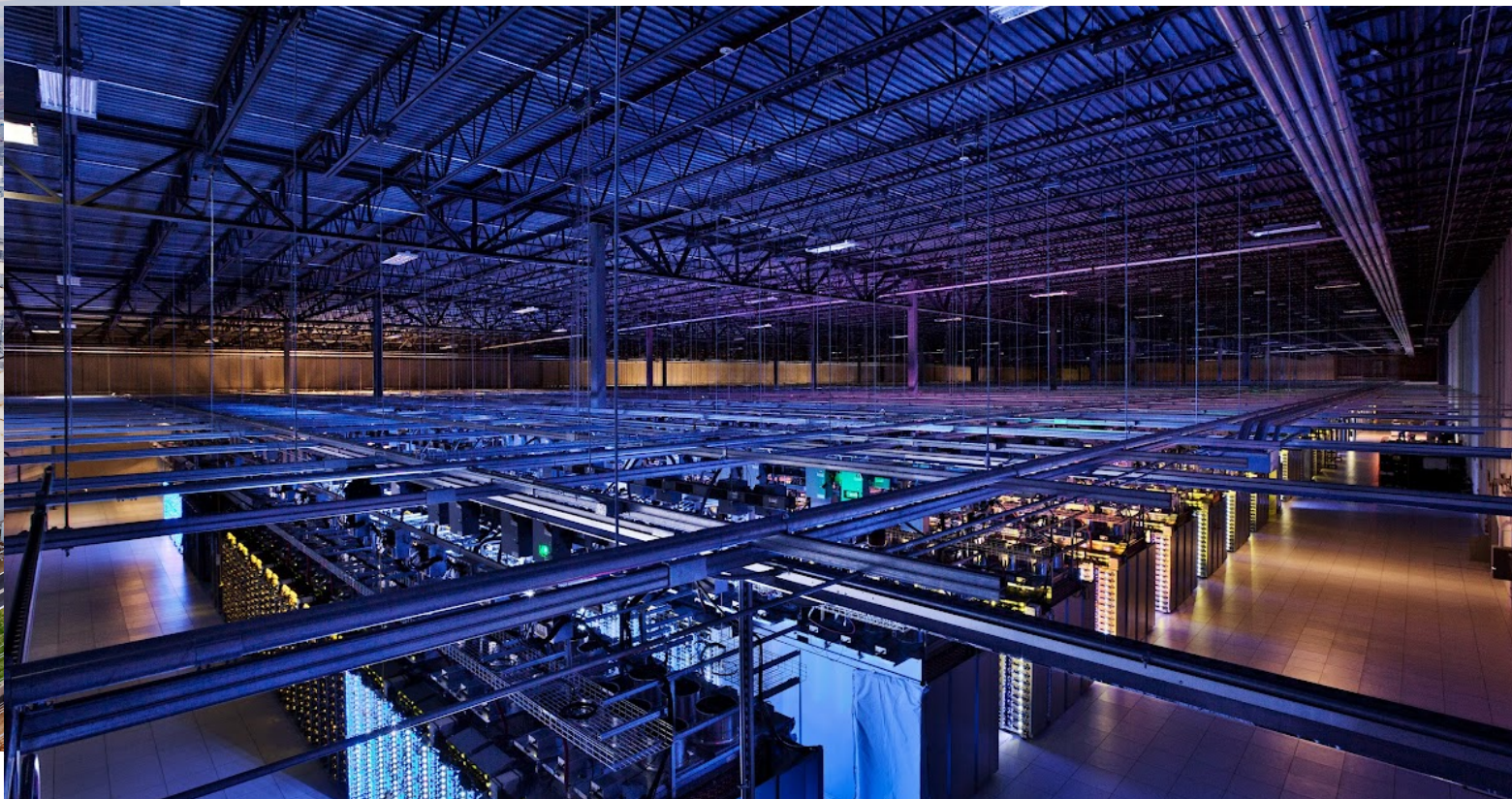
Ahmed Saeed
Assistant Professor

What are datacenters?

What are datacenters?



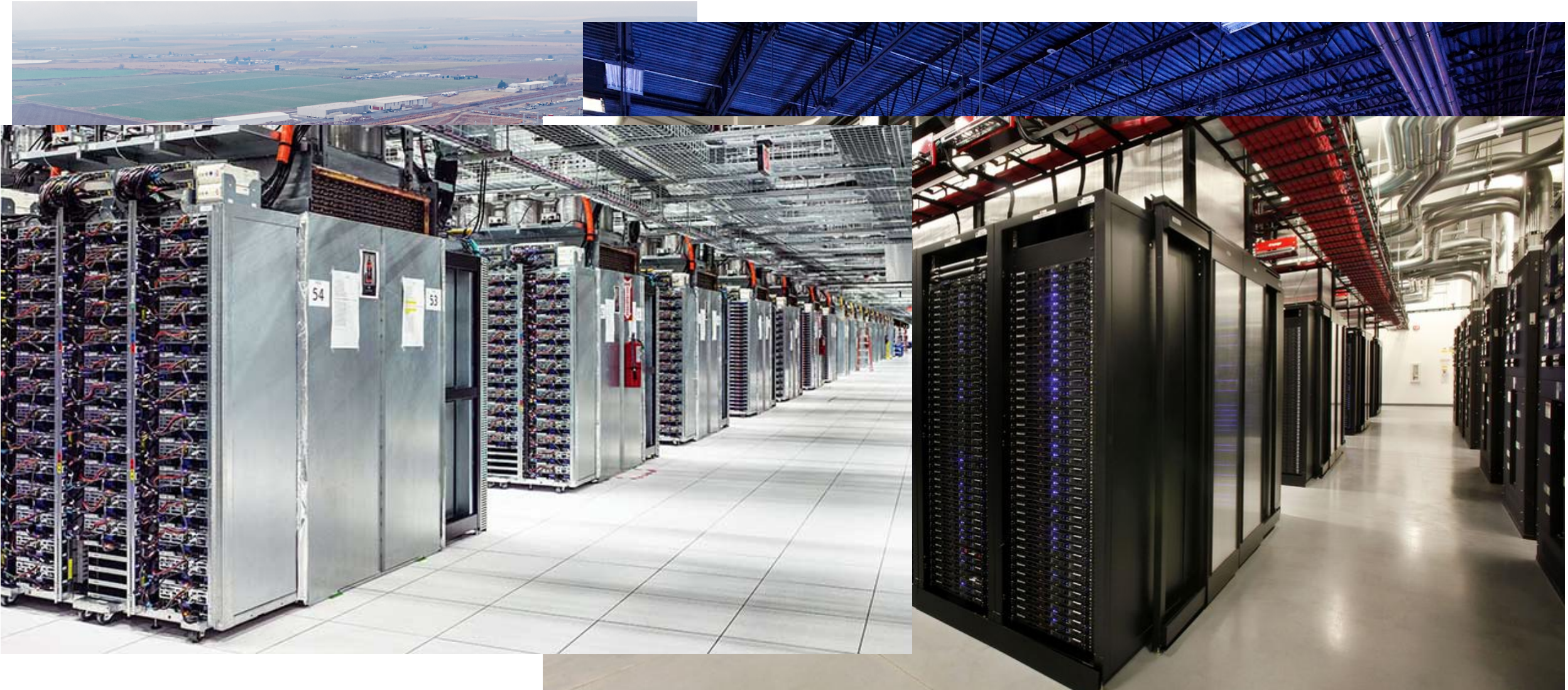
What are datacenters?



What are datacenters?



What are datacenters?



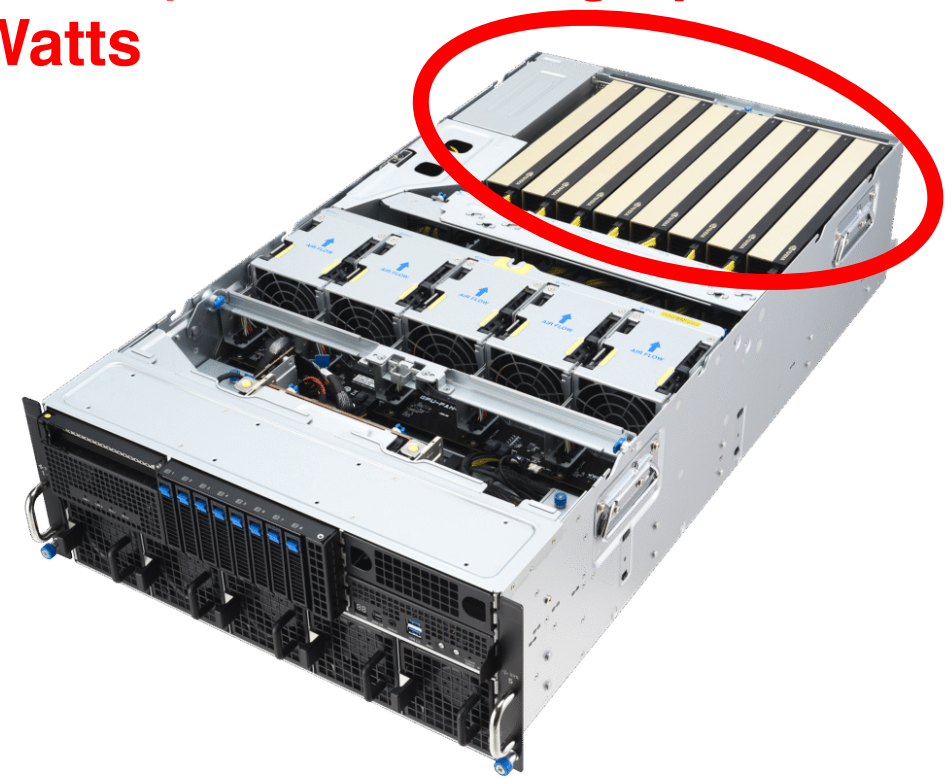
What are datacenters?



What are datacenters?



**8 Graphics Processing Units
(GPUs) each drawing up to 700
Watts**



Types of Datacenters

Types of Datacenters

- Enterprise datacenter (on premise datacenters)

Types of Datacenters

- Enterprise datacenter (on premise datacenters)
- Colocation datacenters

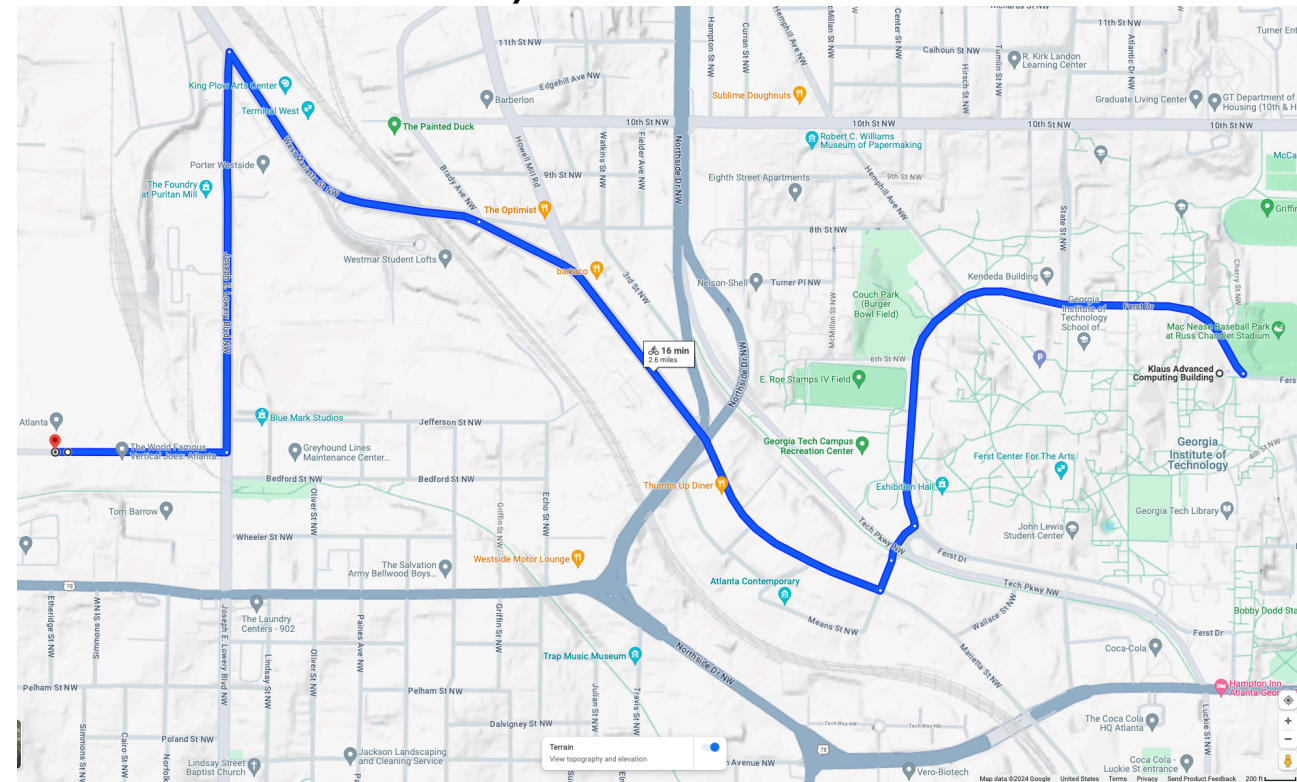
Types of Datacenters

- Enterprise datacenter (on premise datacenters)
- Colocation datacenters



Types of Datacenters

- Enterprise datacenter (on premise datacenters)
- Colocation datacenters



Types of Datacenters

- Enterprise datacenter (on premise datacenters)
- Colocation datacenters



EQUINIX



Types of Datacenters

- Enterprise datacenter (on premise datacenters)
- Colocation datacenters
- Edge datacenters



EQUINIX



Types of Datacenters

- Enterprise datacenter (on premise datacenters)
- Colocation datacenters
- Edge datacenters
- Hyperscale datacenters



EQUINIX

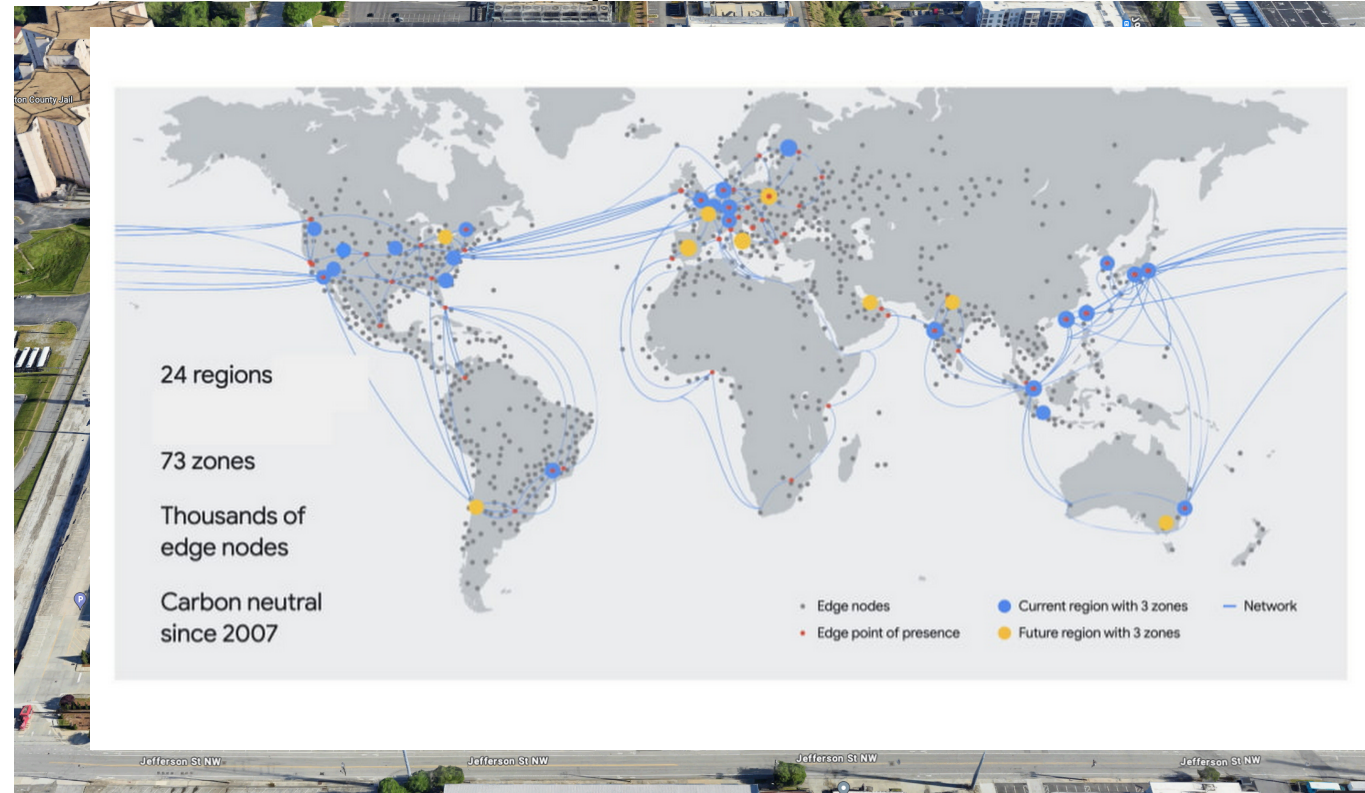


Types of Datacenters

- Enterprise datacenter (on premise datacenters)
- Colocation datacenters
- Edge datacenters
- Hyperscale datacenters

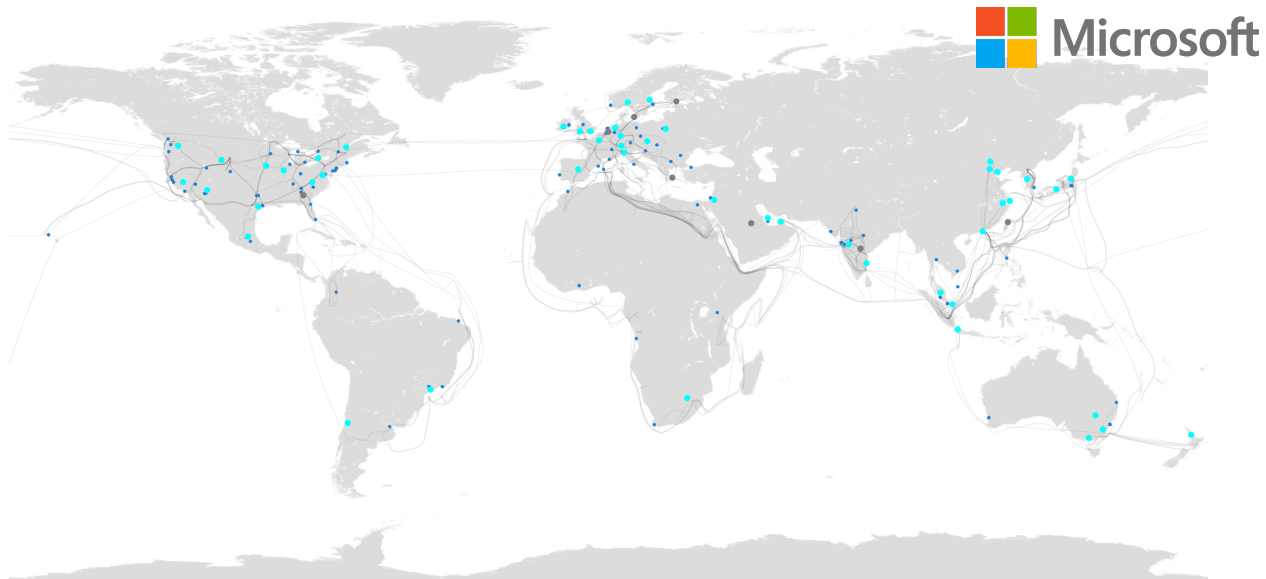


EQUINIX

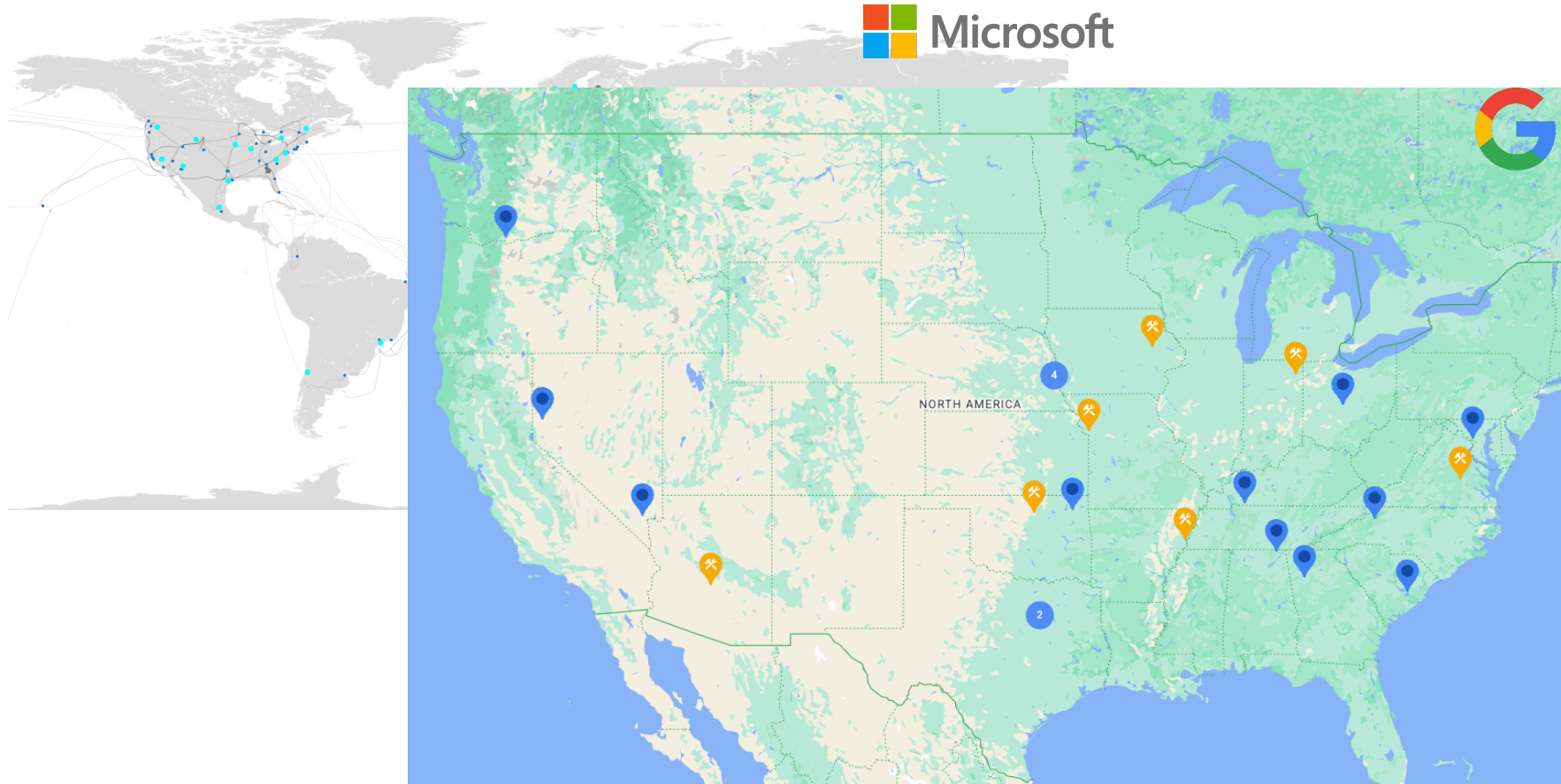


Where are datacenters?

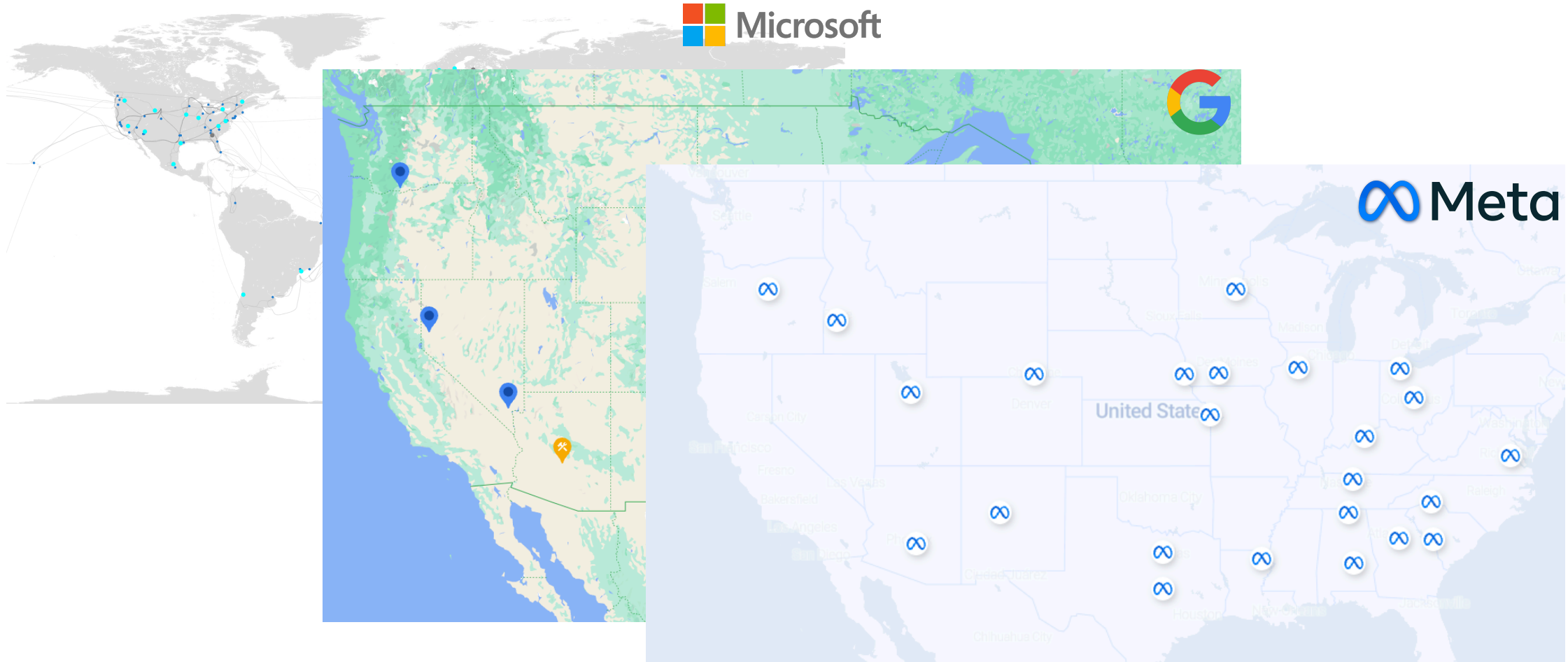
Where are datacenters?



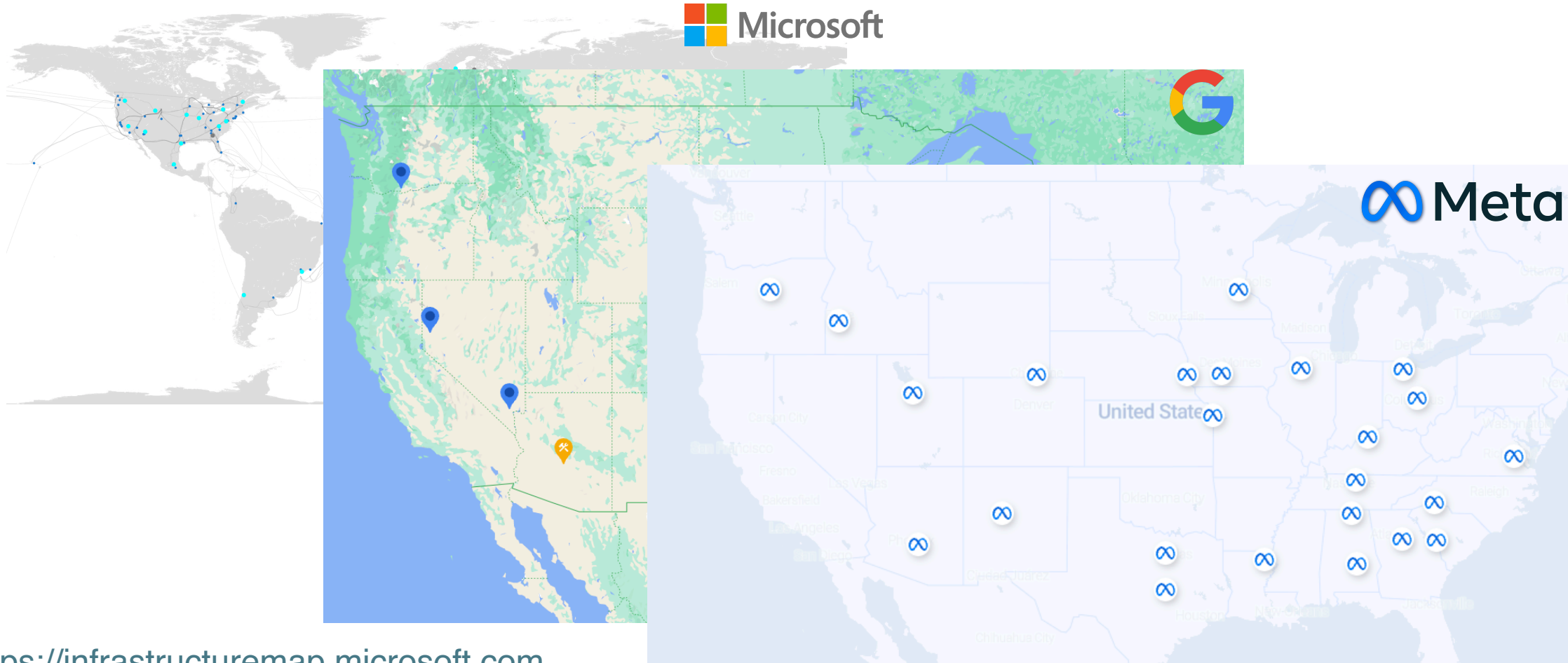
Where are datacenters?



Where are datacenters?



Where are datacenters?



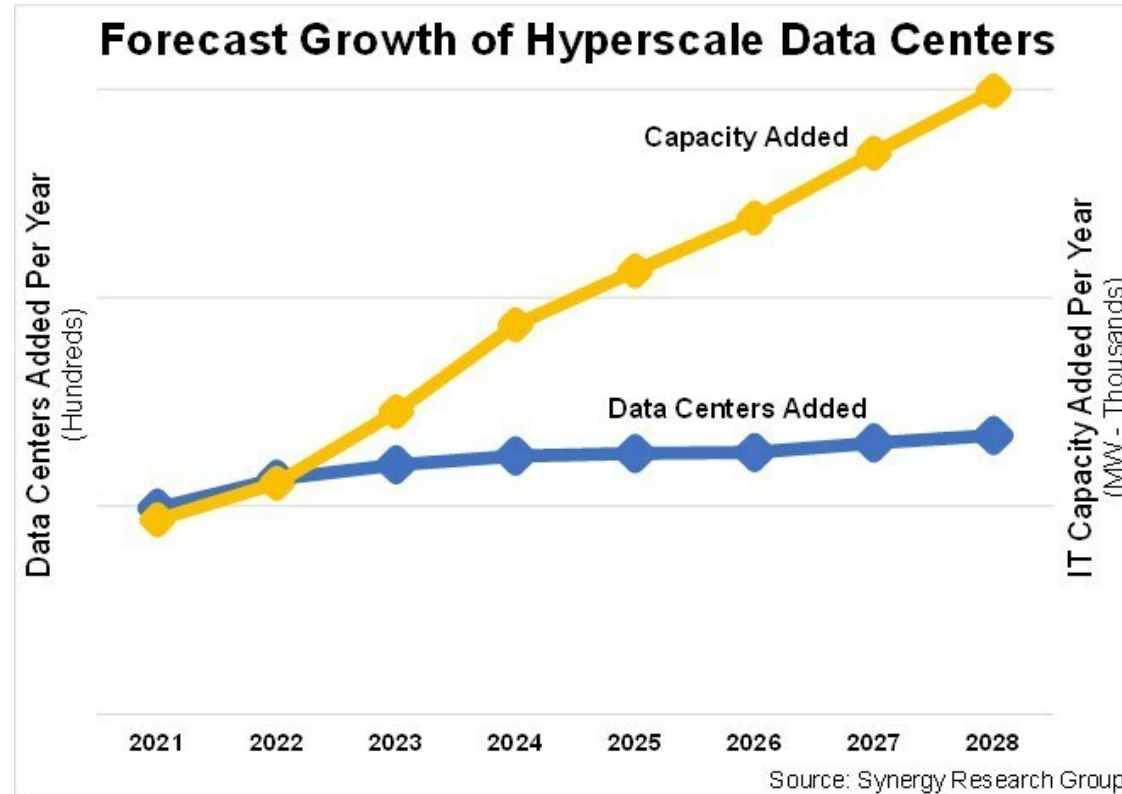
<https://infrastructuremap.microsoft.com>

<https://datacenters.google/>

<https://datacenters.atmeta.com/>

<https://www.datacentermap.com/>

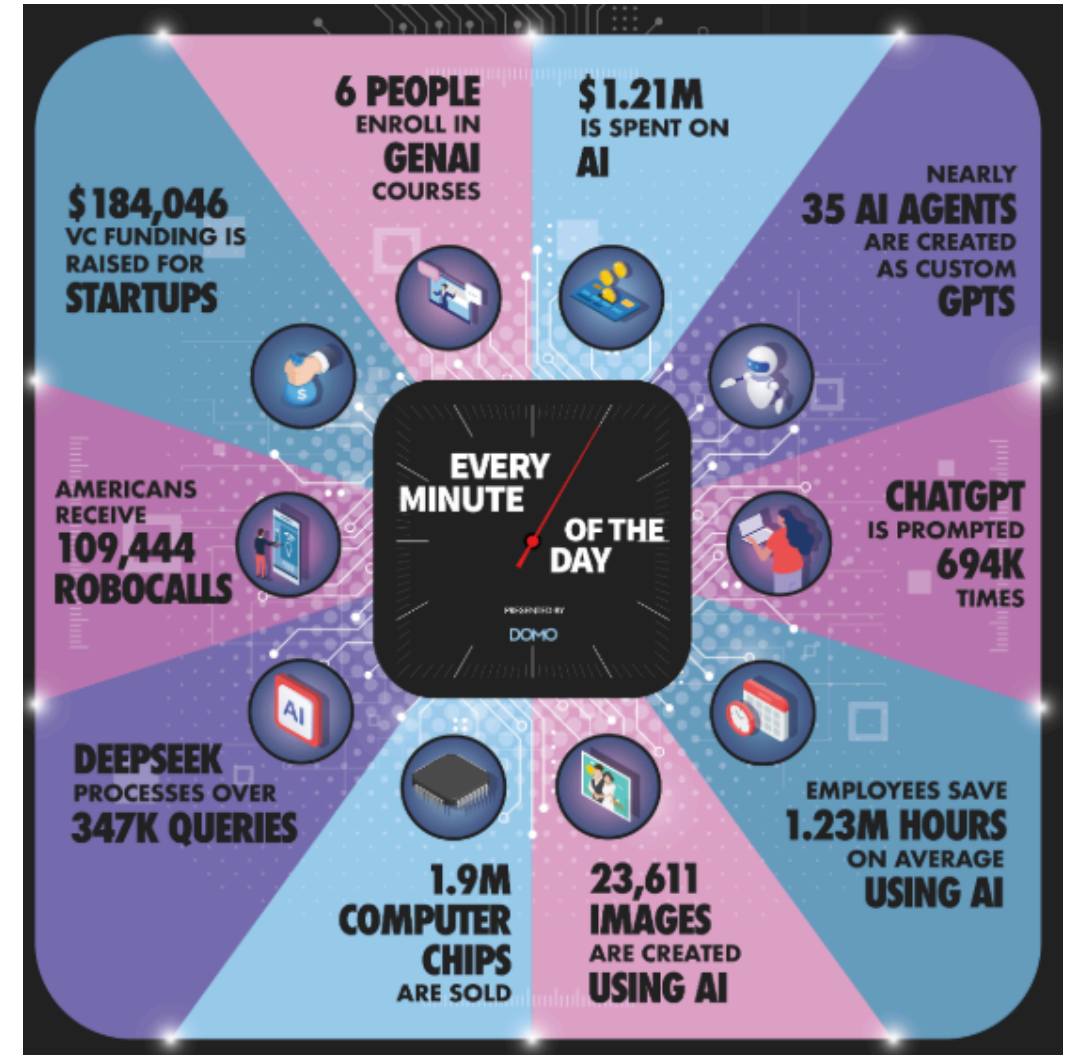
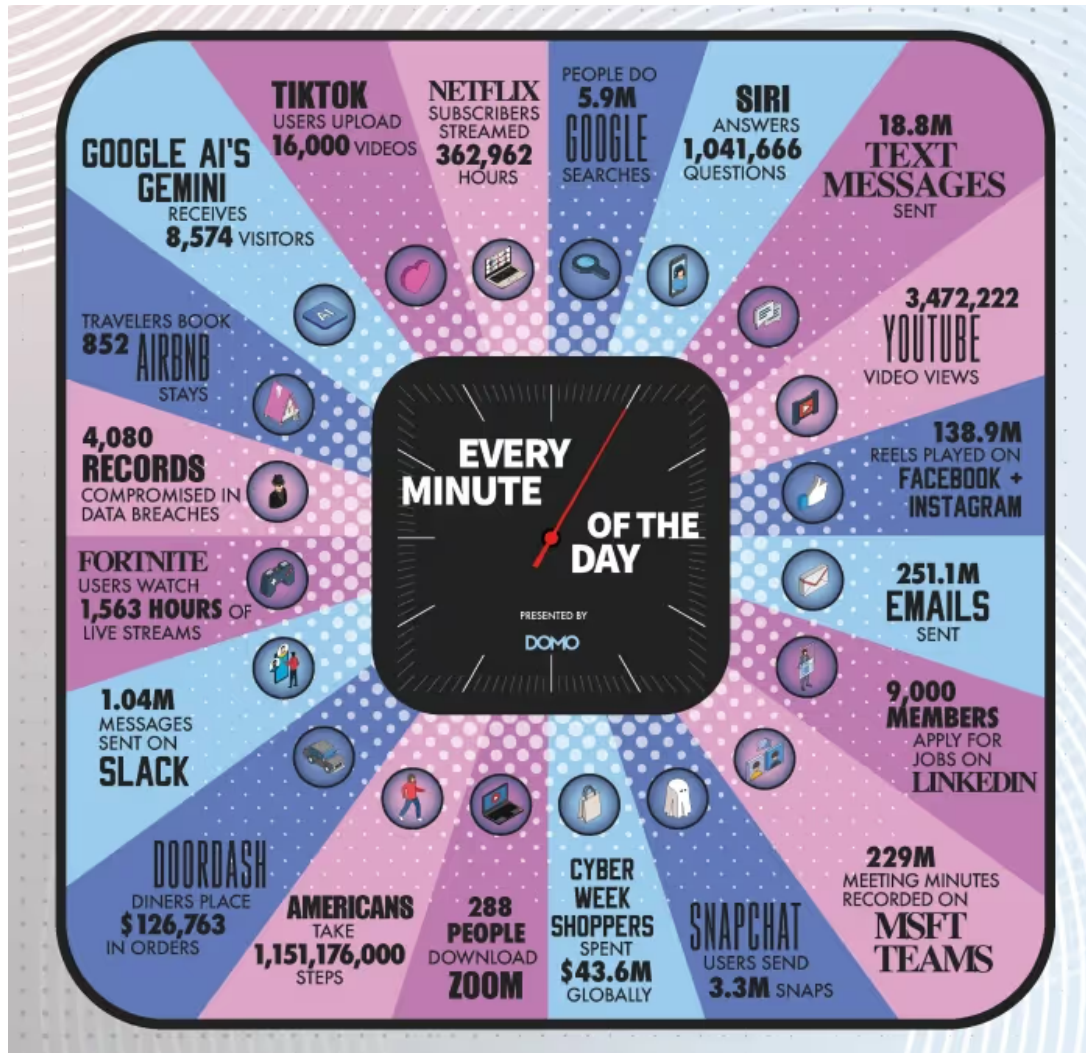
How much are we building?



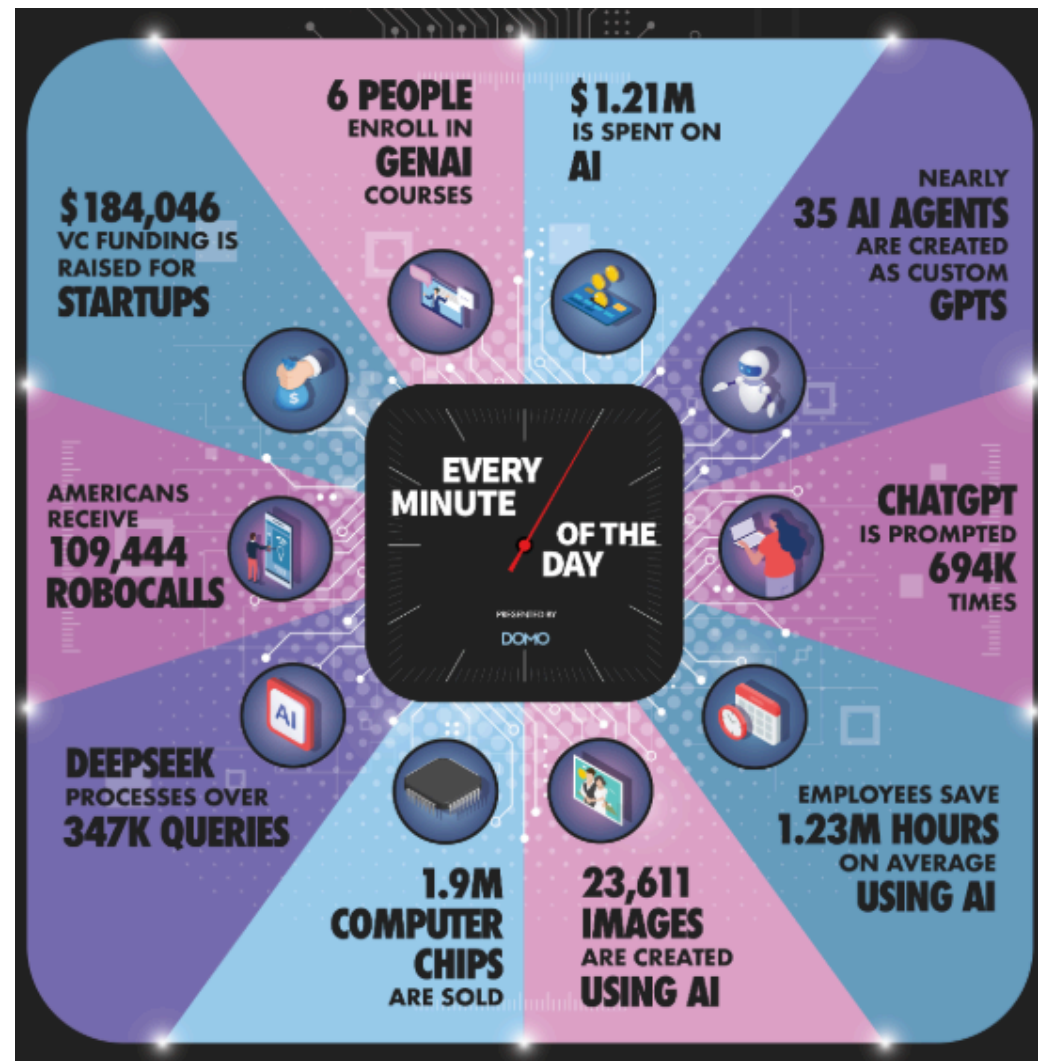
Hyperscale Data Center Capacity to Almost Triple

(<https://www.srgresearch.com/articles/hyperscale-data-center-capacity-to-almost-triple-in-next-six-years-driven-by-ai>)

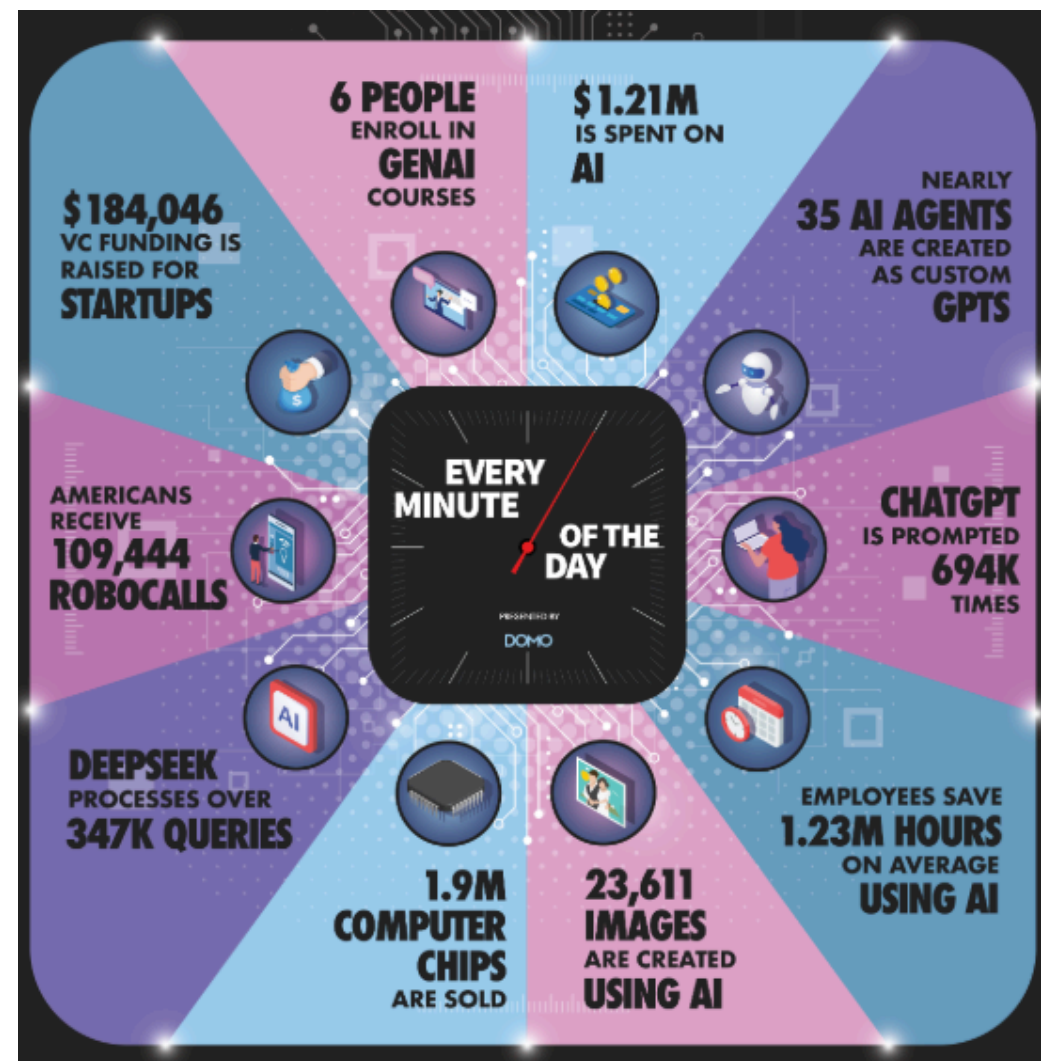
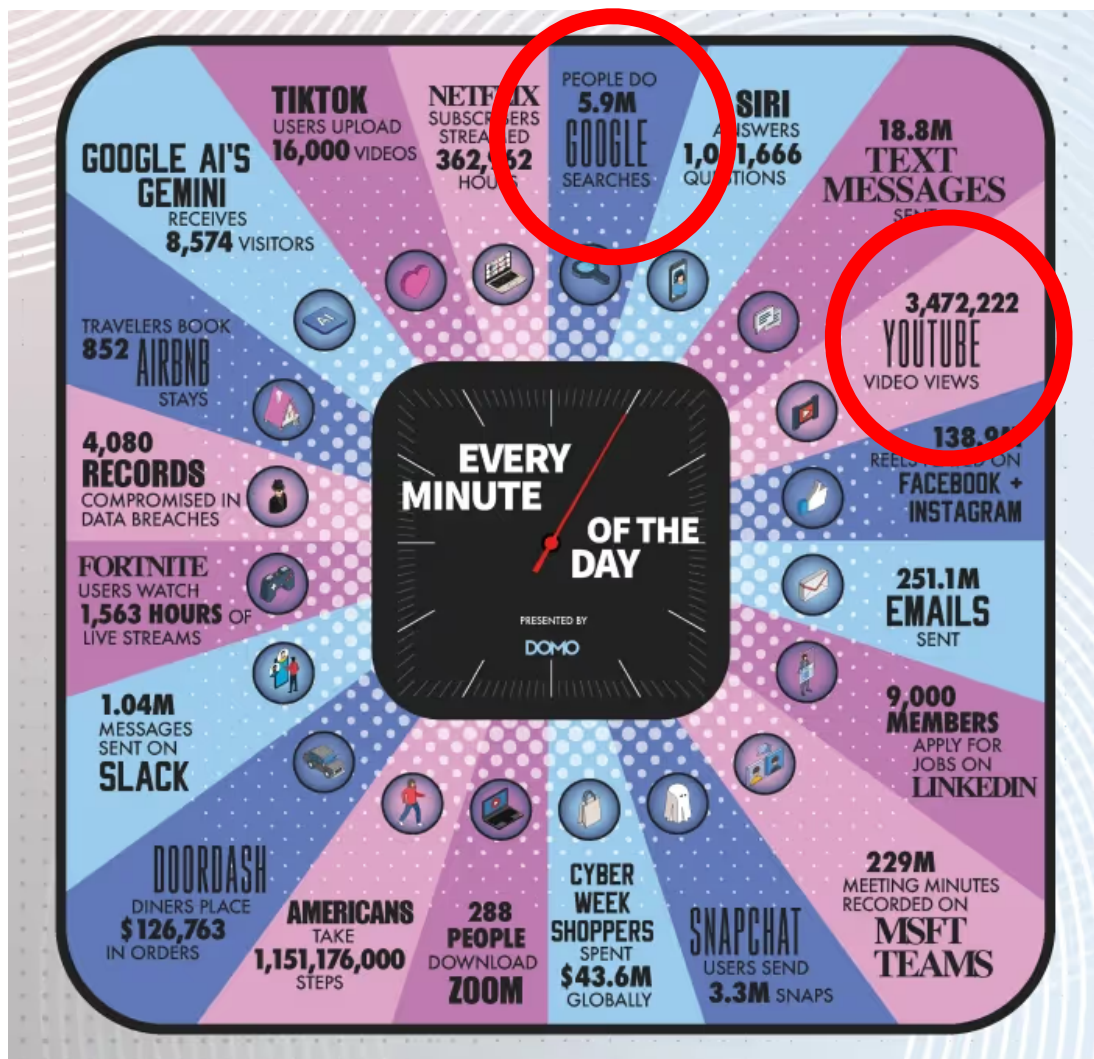
Why are building so much?



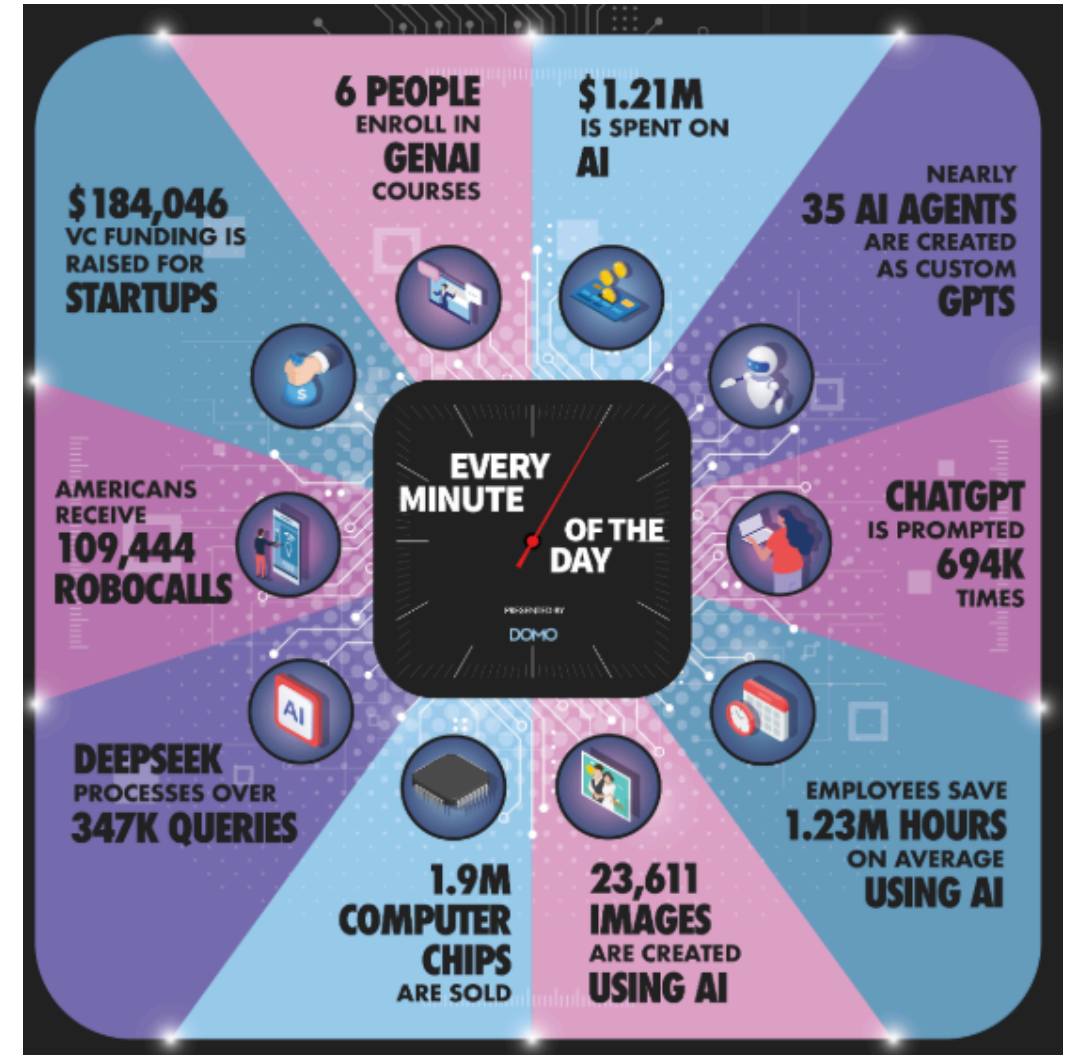
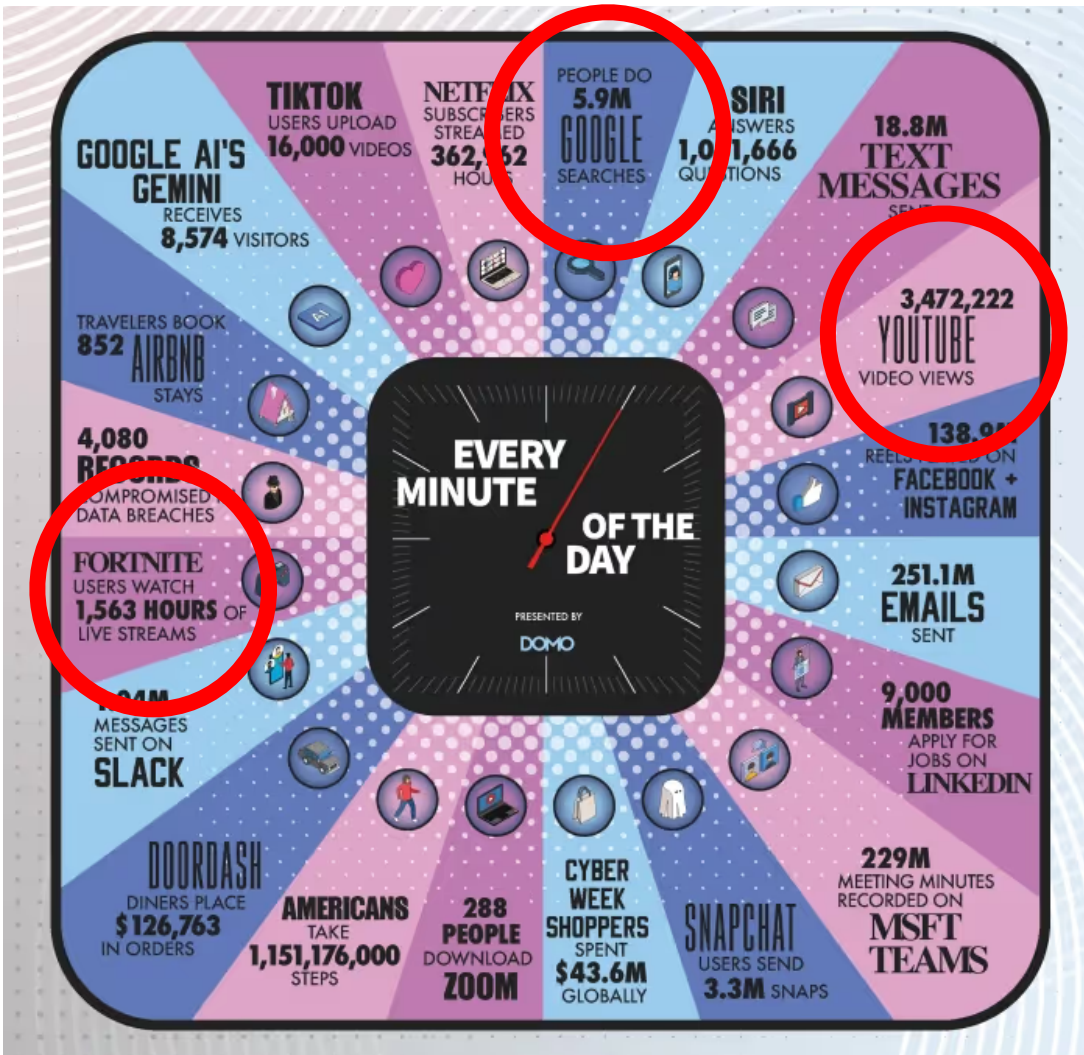
Why are building so much?



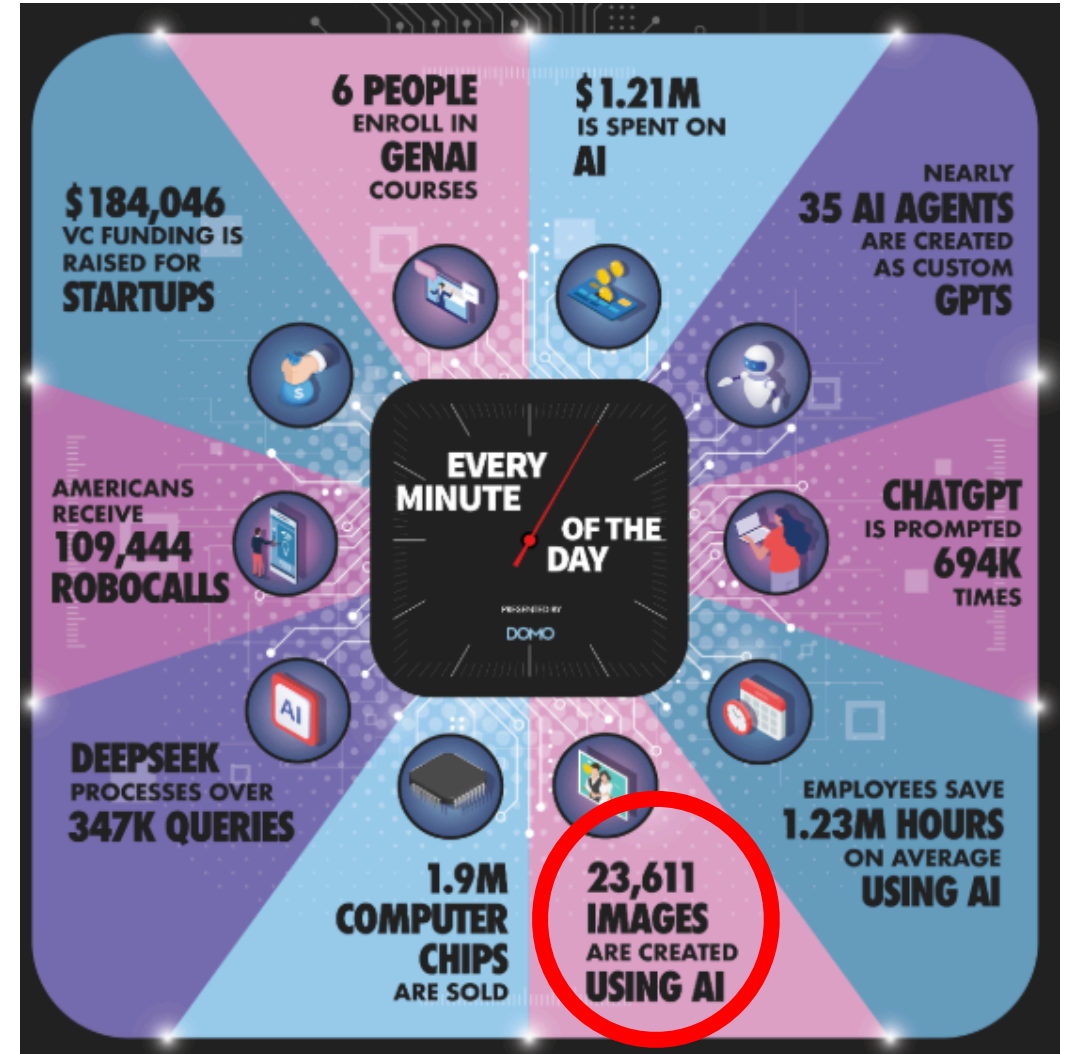
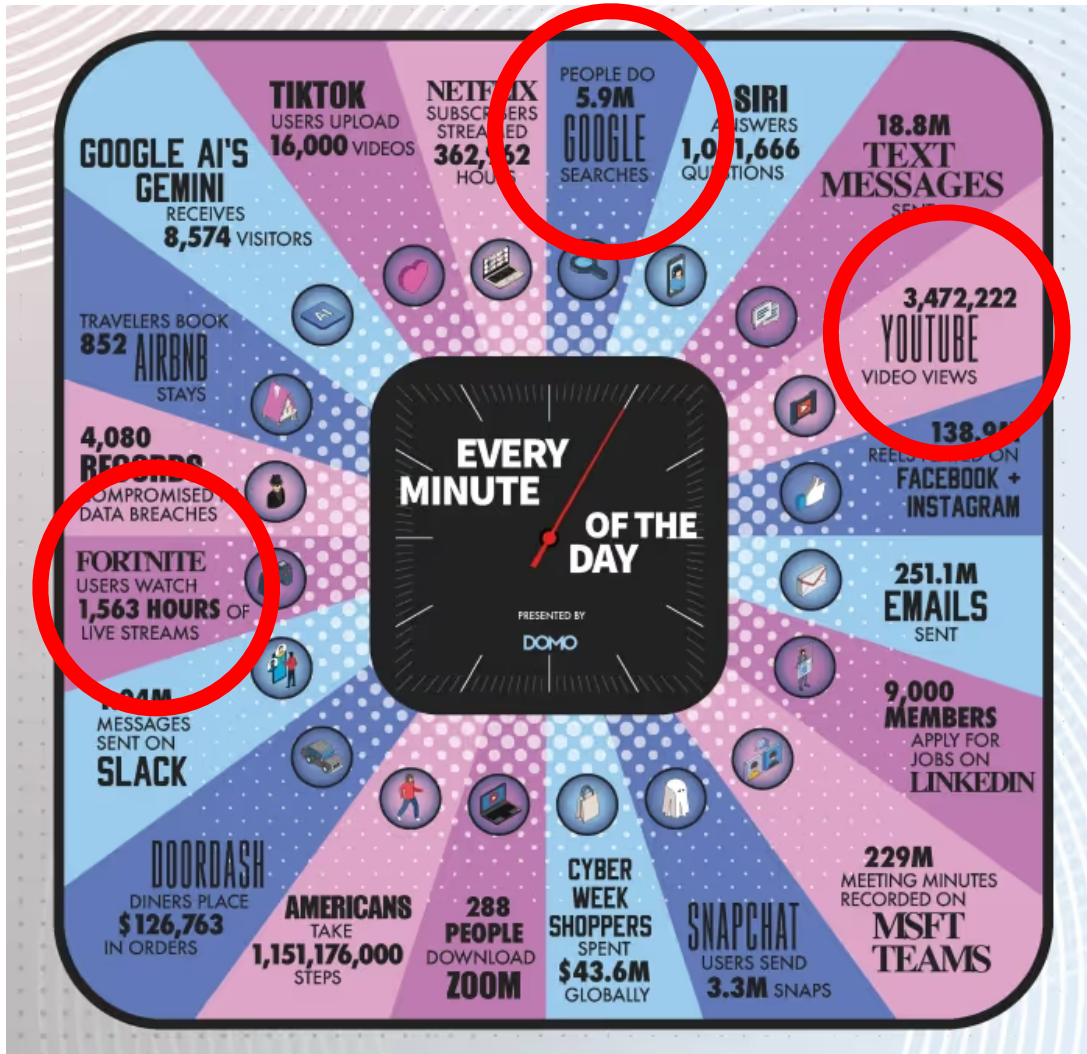
Why are building so much?



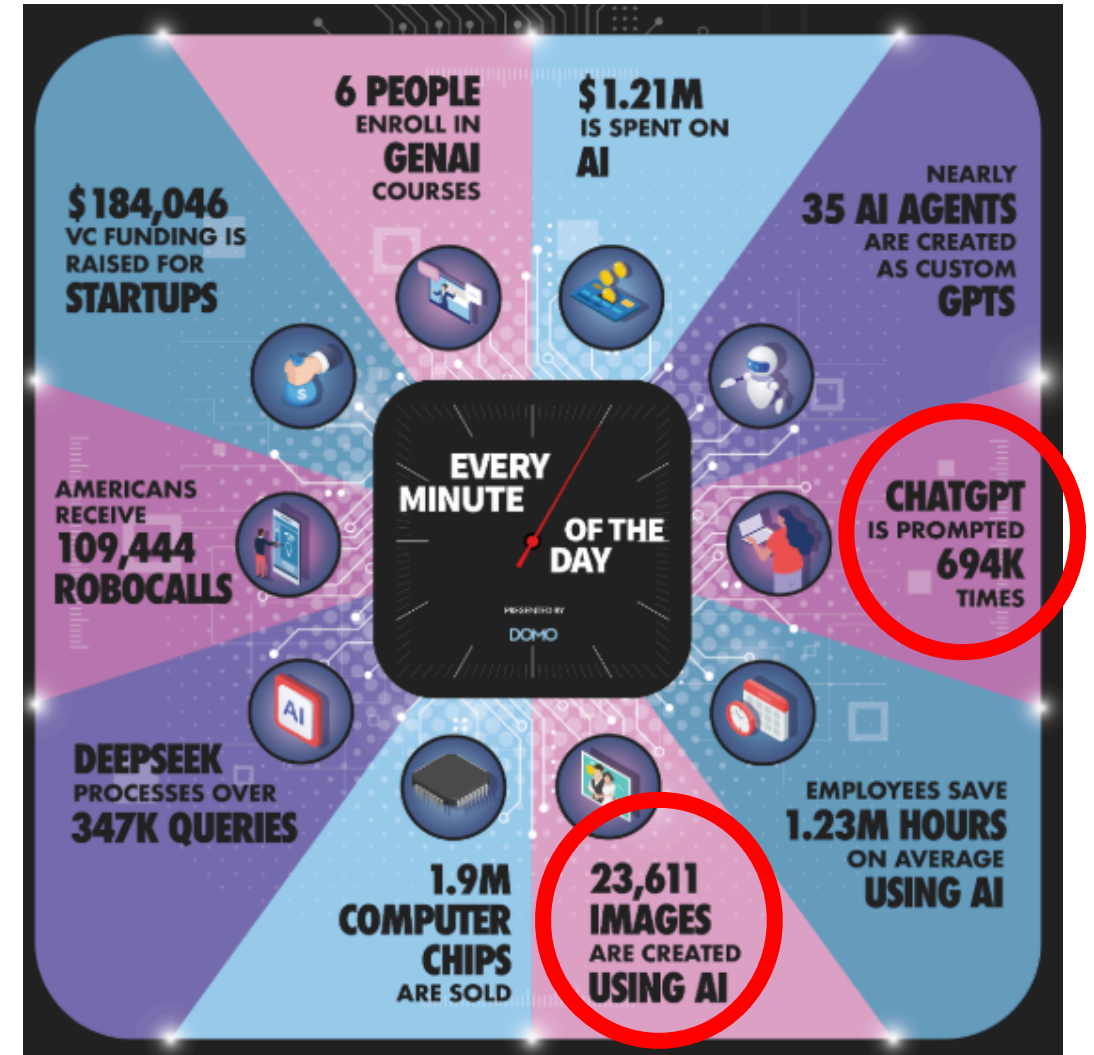
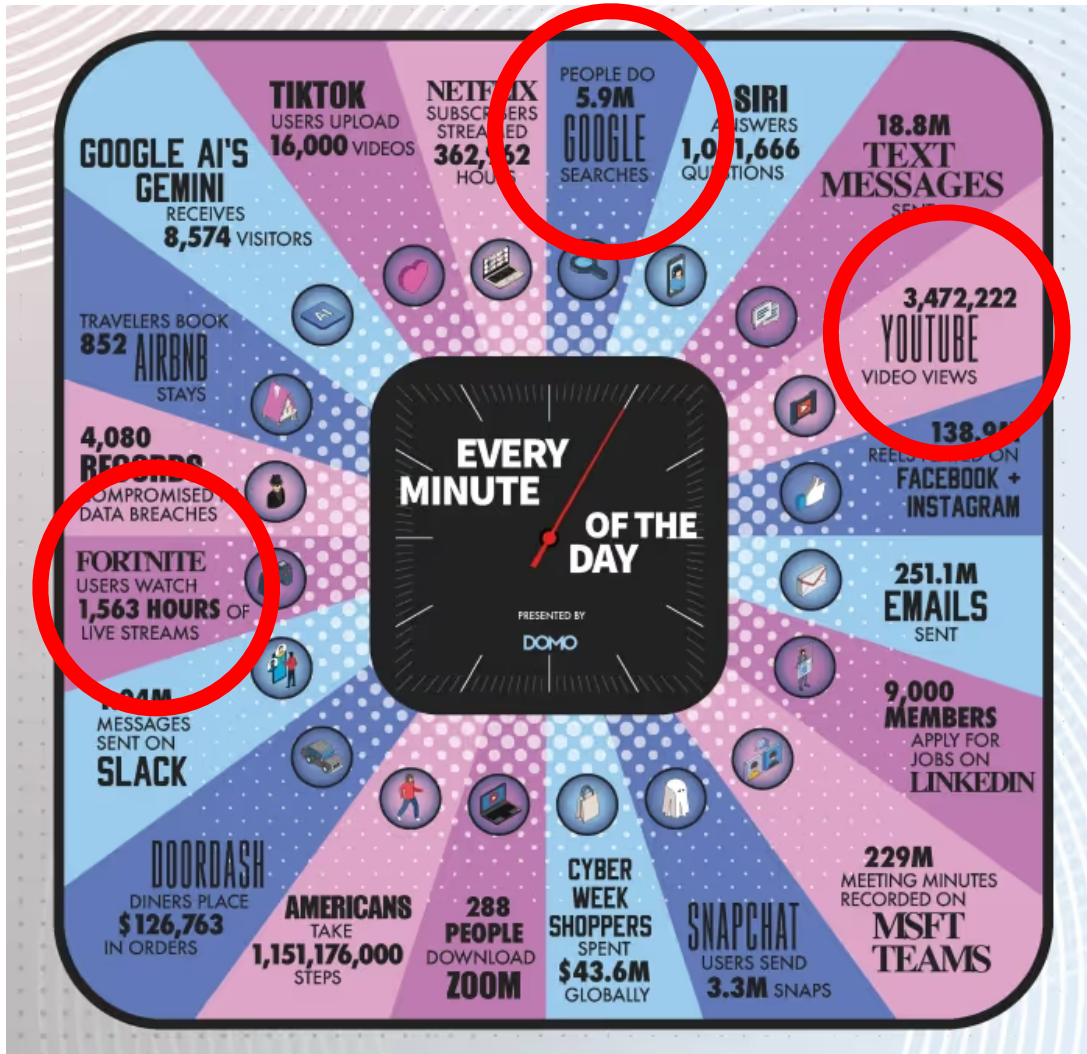
Why are building so much?



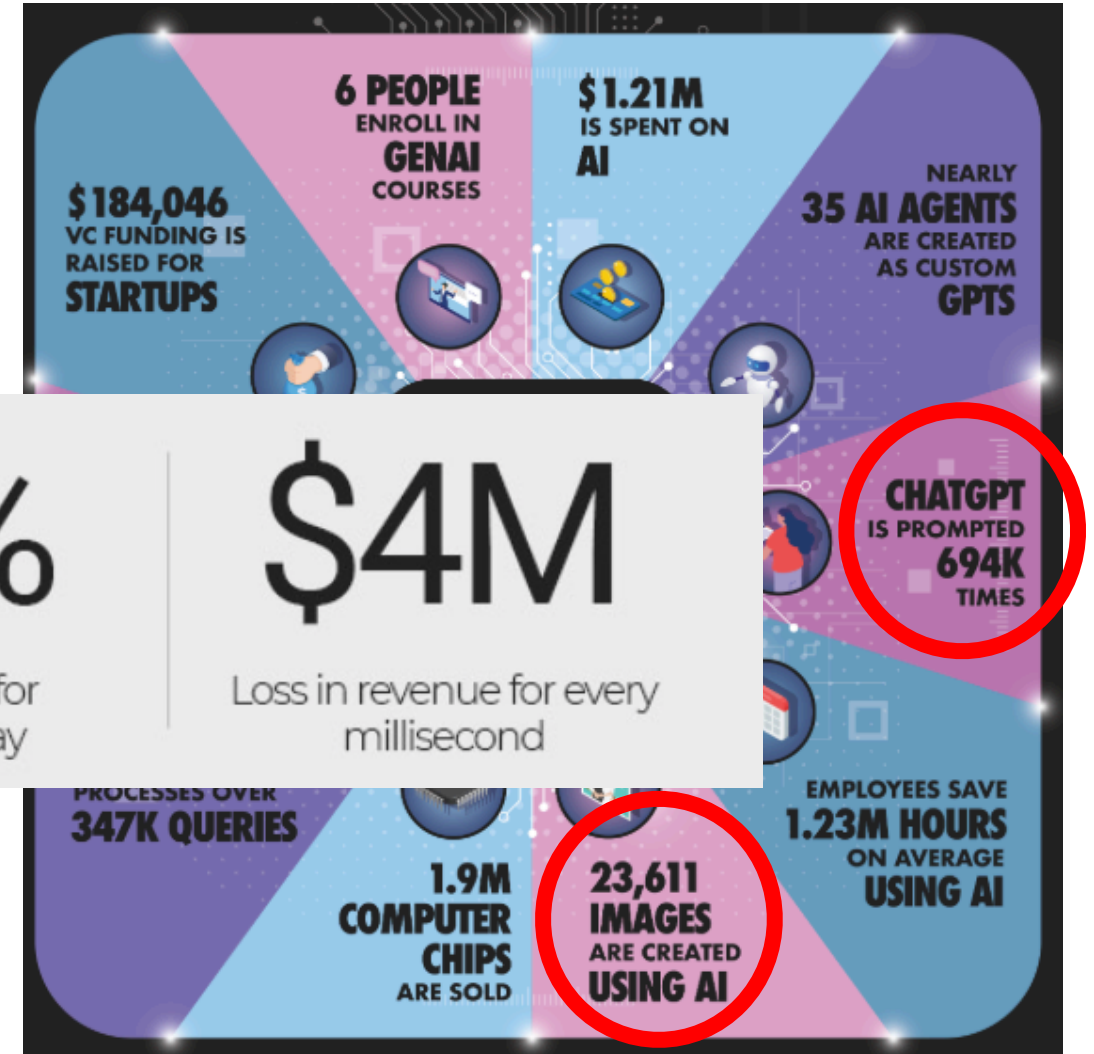
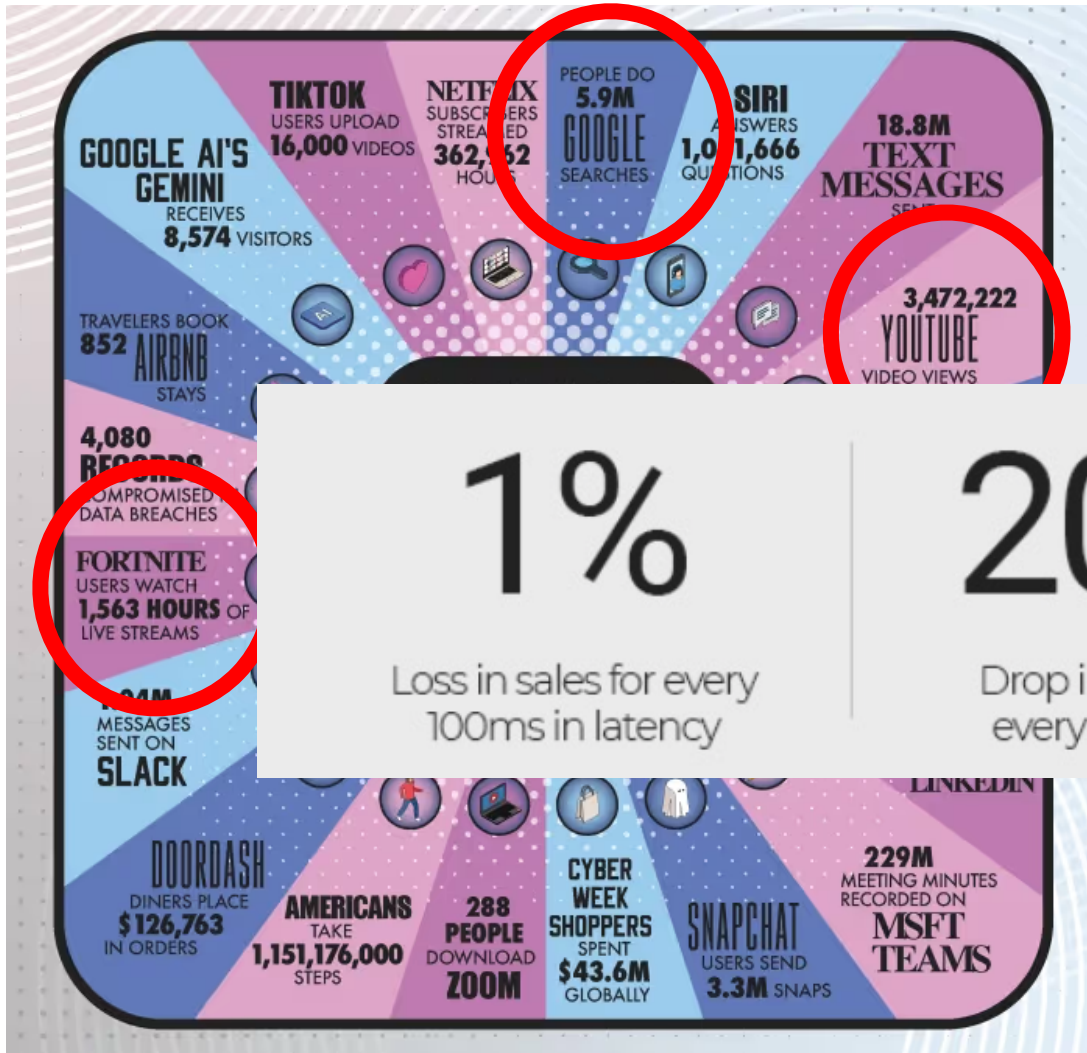
Why are building so much?



Why are building so much?



Why are building so much?



1%

Loss in sales for every
100ms in latency

20%

Drop in traffic for
every 0.5s delay

\$4M

Loss in revenue for every
millisecond

JEVON'S PARADOX

FUEL EFFICIENCY GAINS TEND TO **INCREASE**,
NOT DECREASE, FUEL USE.



sketchplanations