



# Eliminating Limits to Data Center Growth and Sustainability with Liquid Cooling *“and why we need it...”*

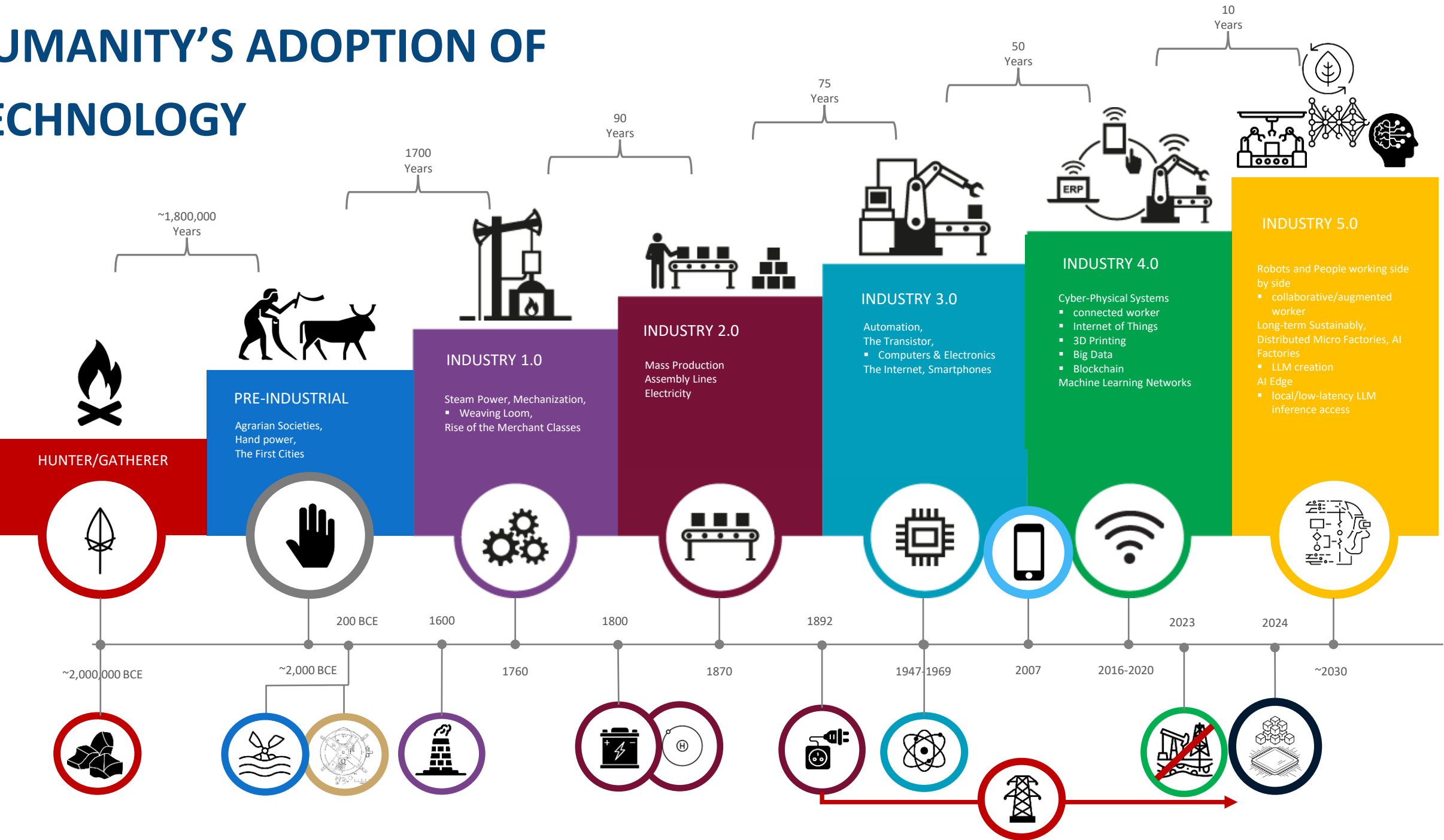


**Phill Lawson-Shanks**

Chief Innovation Officer



# HUMANITY'S ADOPTION OF TECHNOLOGY





HIGH - PERFORMANCE COMPUTING ACT  
NATIONAL INFORMATION INFRASTRUCTURE



MAINFRAMES & COMPUTER  
ROOMS



Data Centers



LANs & CLIENT SERVER

TCP/IP



HP 85



IBM 5150

1940 // 1969 1979 1981 1983 1986 - 89 1991



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1940 // 1969 1979 1981 1983 1986 - 89 1991

CENTRALIZED COMPUTE



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ROOMS



Data Centers



vmware



Palm Pilot



digex.com



Google



LANs & CLIENT SERVER

ebay



EQUINIX

WORLD.COM



salesforce



CompuServe



HP 85



IBM 5150

TCP/IP

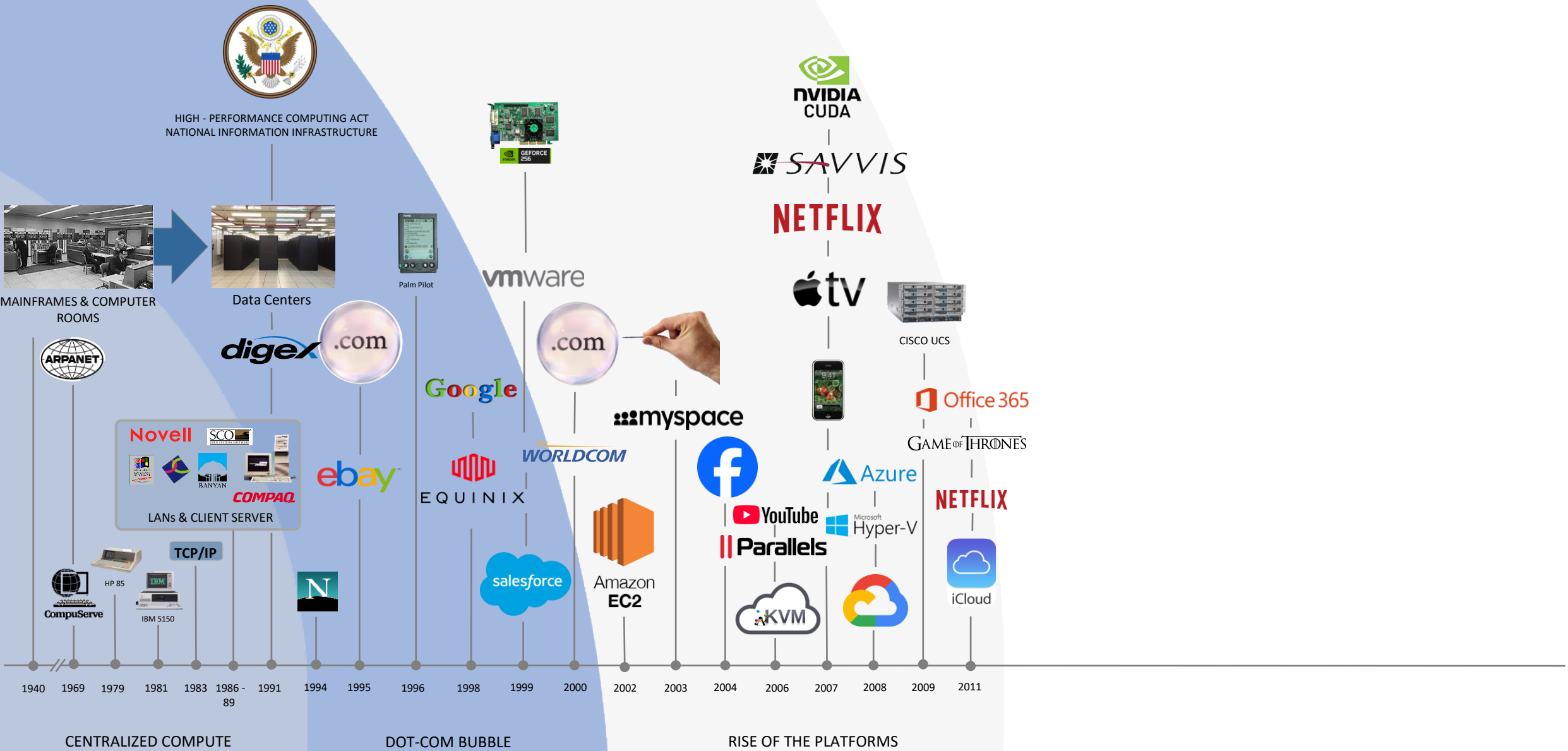


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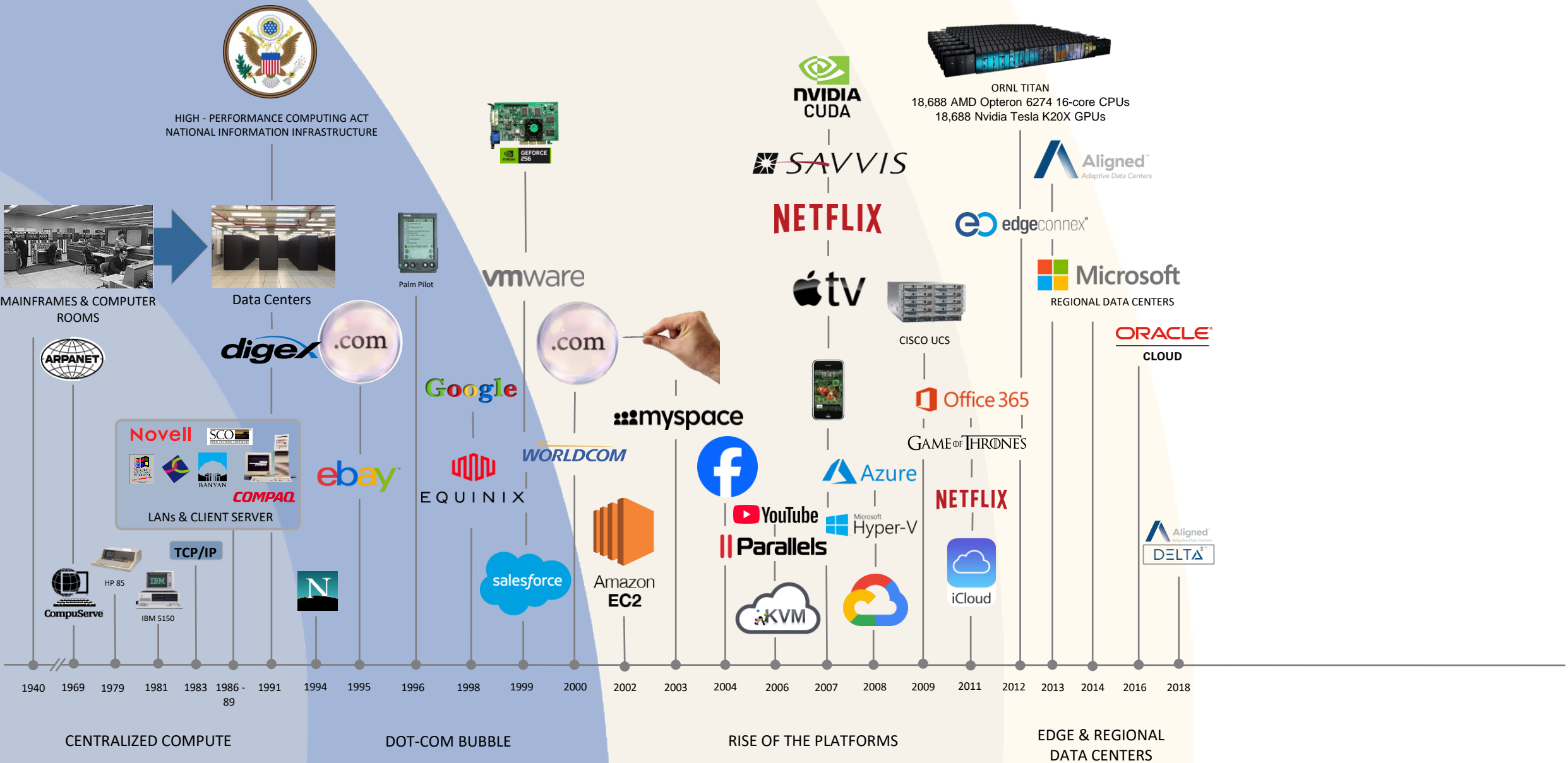
1940 1969 1979 1981 1983 1986 - 89 1991 1994 1995 1996 1998 1999 2000

CENTRALIZED COMPUTE

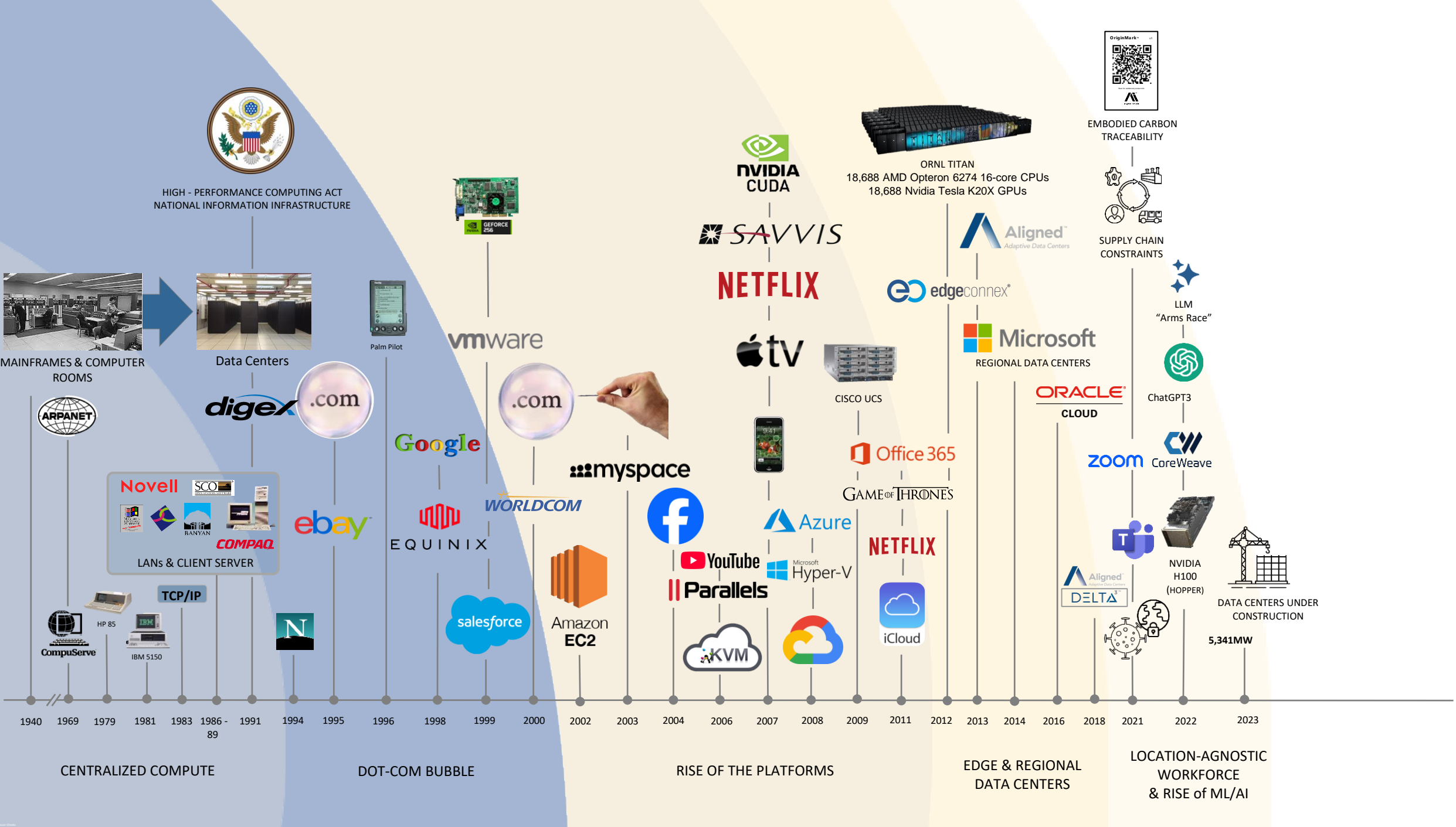
DOT-COM BUBBLE

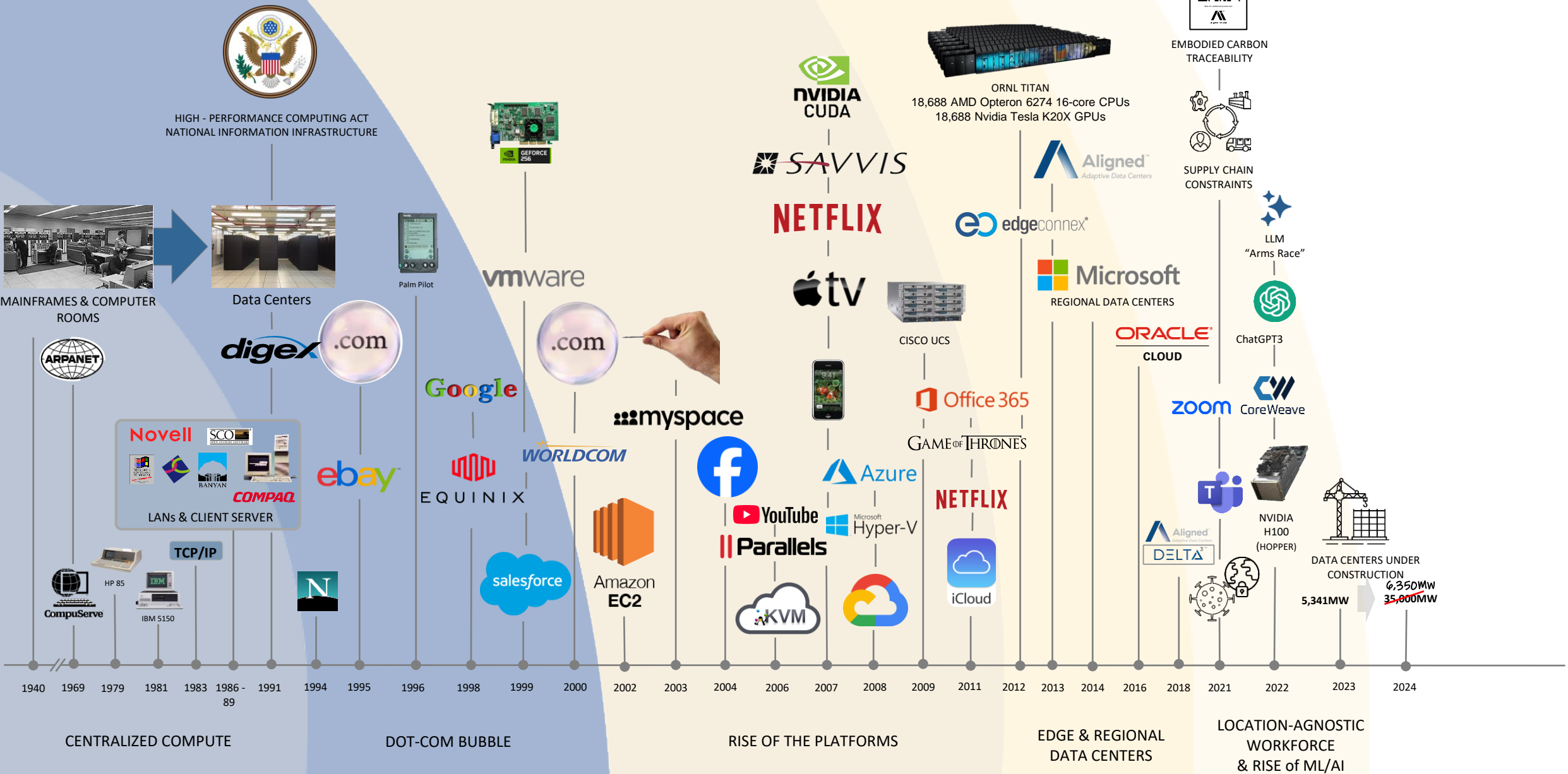


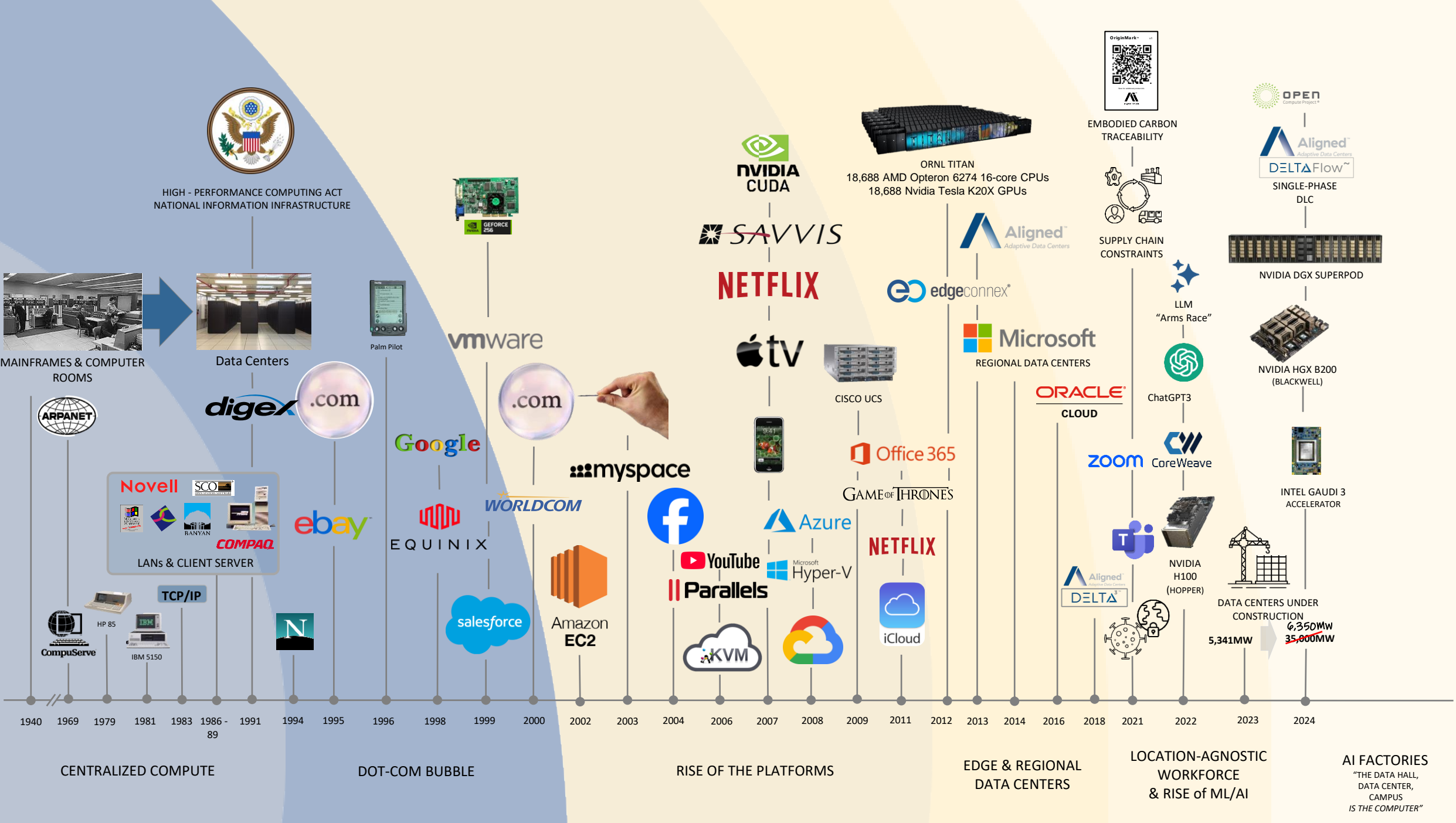












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256

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f

YouTube

KVM

Parallels

Azure

Microsoft Hyper-V

CISCO UCS

Apple TV

Office 365

GAME OF THRONES

NETFLIX

iCloud

Microsoft  
REGIONAL DATA CENTERS

edgeconnex

SAVVIS

NETFLIX

NVIDIA  
CUDA

ORNL TITAN  
18,688 AMD Opteron 6274 16-core CPUs  
18,688 Nvidia Tesla K20X GPUs

Embodied Carbon  
TRACEABILITY

SUPPLY CHAIN  
CONSTRAINTS

LLM  
"Arms Race"

ChatGPT3

zoom

CoreWeave

Aligned  
DELTA

NVIDIA H100  
(HOPPER)

DATA CENTERS UNDER  
CONSTRUCTION

5,341MW  
6,350MW  
35,000MW

NVIDIA DGX SUPERPOD

NVIDIA HGX B200  
(BLACKWELL)

INTEL GAUDI 3  
ACCELERATOR

OPEN  
Aligned  
DELTAFlow  
SINGLE-PHASE  
DLC

CENTRALIZED COMPUTE

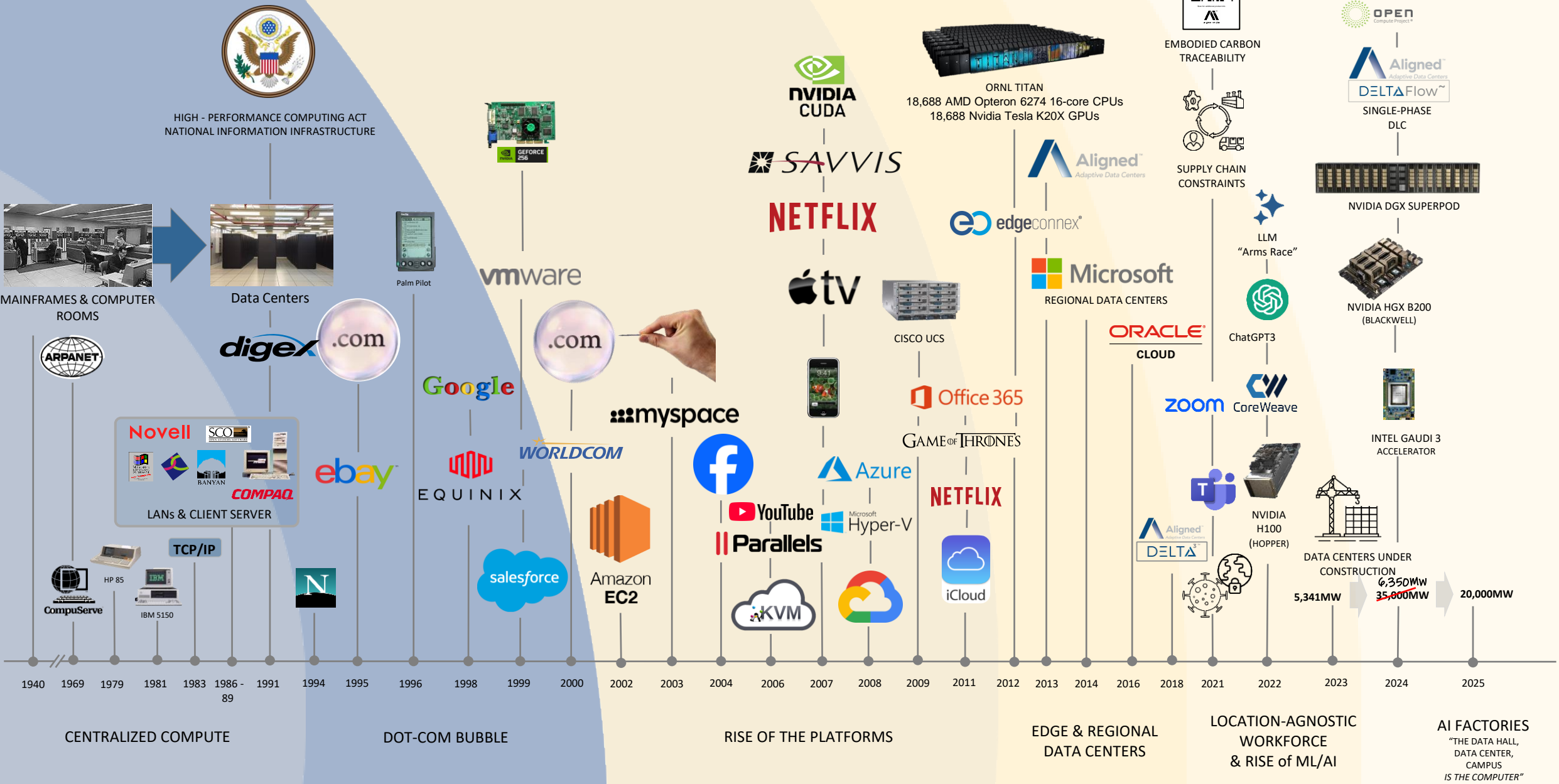
DOT-COM BUBBLE

RISE OF THE PLATFORMS

EDGE & REGIONAL  
DATA CENTERS

LOCATION-AGNOSTIC  
WORKFORCE  
& RISE OF ML/AI

AI FACTORIES  
"THE DATA HALL,  
DATA CENTER,  
CAMPUS  
IS THE COMPUTER"



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myspace

CISCO UCS

Microsoft  
REGIONAL DATA CENTERS

ORACLE  
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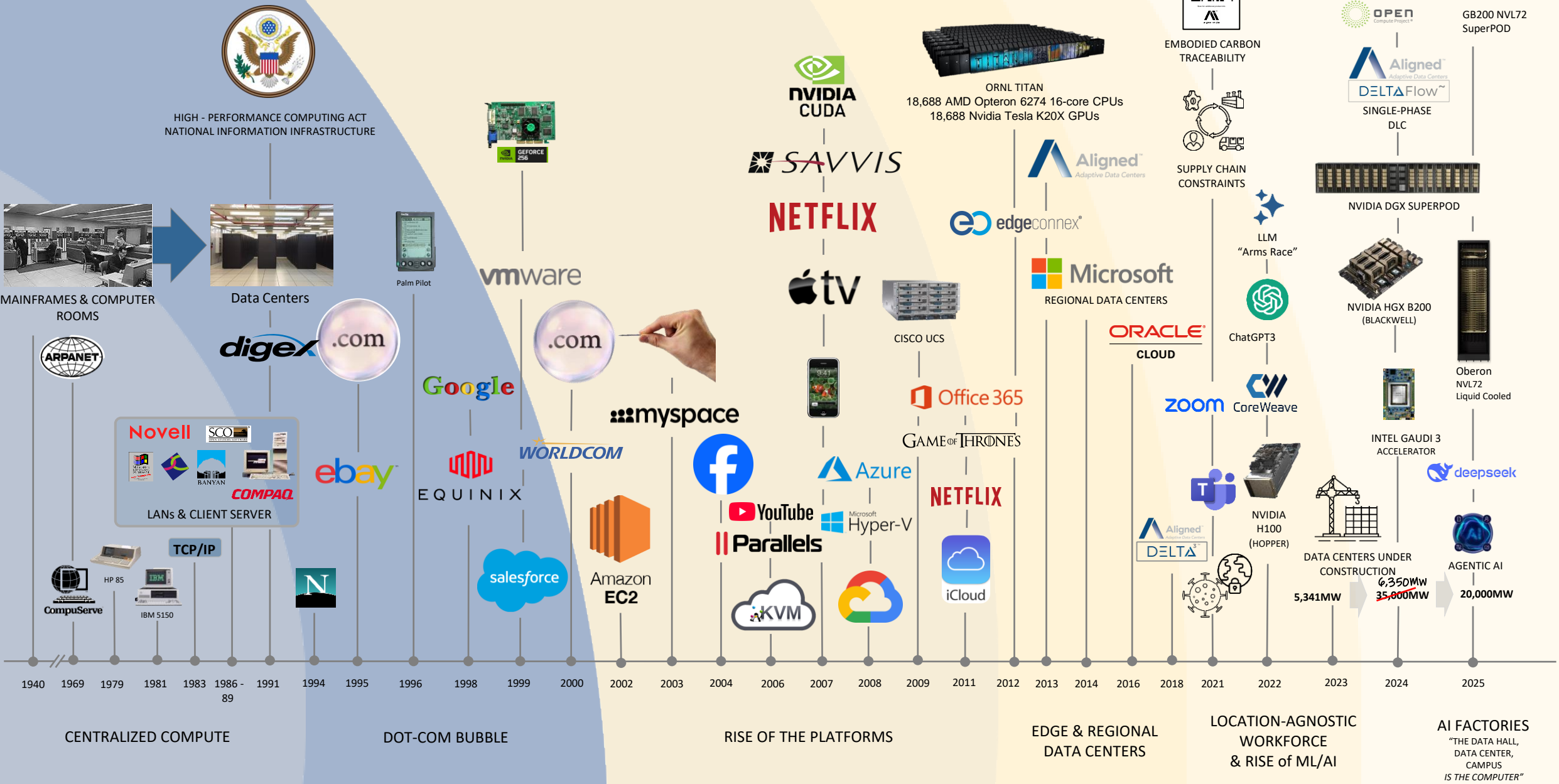
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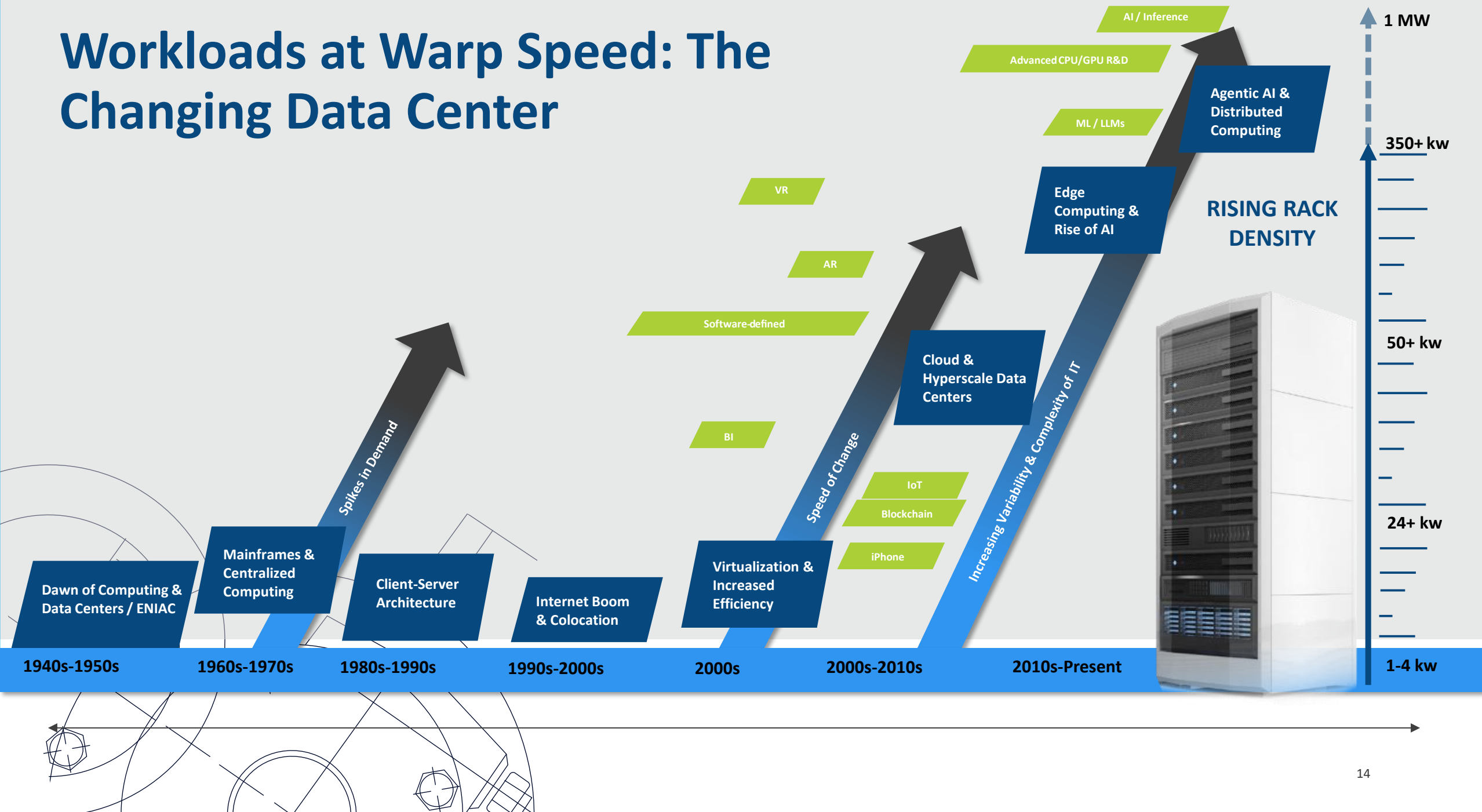
5,341MW → 6,350MW → 20,000MW

AI FACTORIES  
"THE DATA HALL,  
DATA CENTER,  
CAMPUS  
IS THE COMPUTER"





# Workloads at Warp Speed: The Changing Data Center



# Aligned's Modular Design: The Foundation for AI & Cloud Evolution

## Hybrid Cooling for AI & Cloud

### DELTAFlow~

*Built for AI, GPUs, and high-density workloads.*

**AI Enablement** Designed for extreme GPU densities. Seamless **Integration** Works with Aligned's primary water loop & chillers. **Closed-Loop Design** Sustainable, water-efficient cooling.

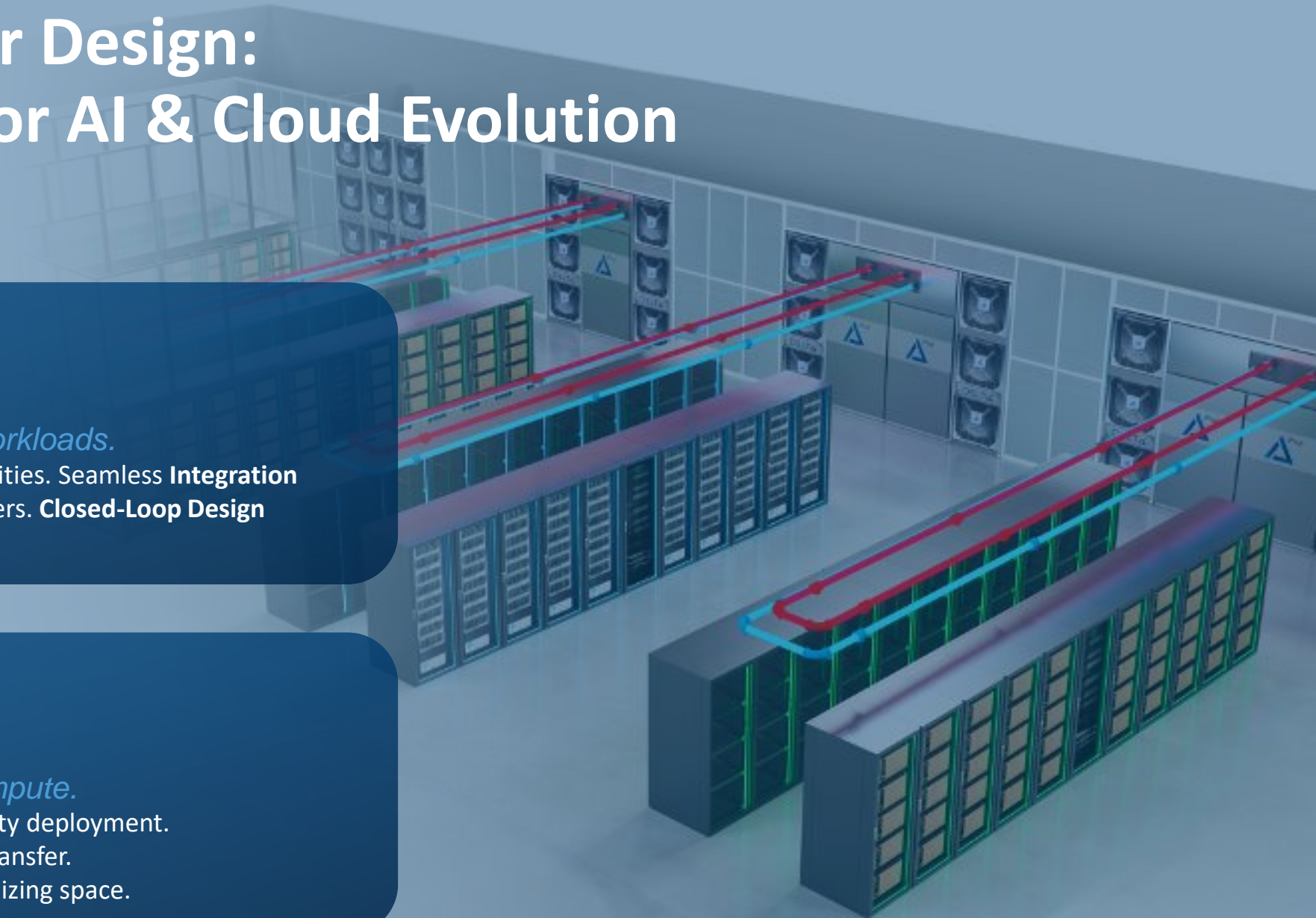
### DELTA<sup>3</sup>

*Optimized for traditional cloud and compute.*

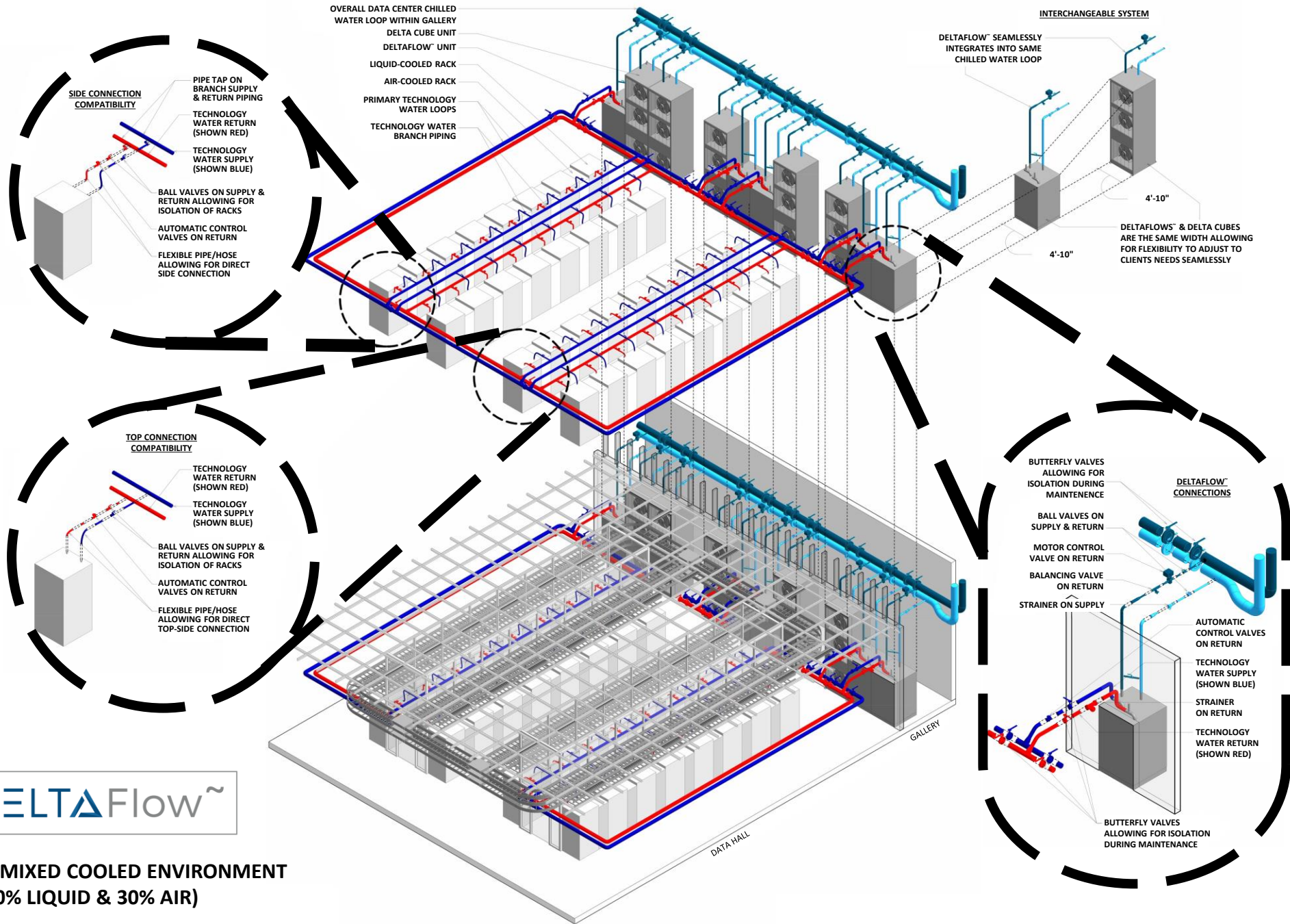
**Flood Room Design** Enables dynamic high-density deployment.

**Patented Microchannel Coil** High delta T heat transfer.

**Structural Ceiling Grid** Returns heat while optimizing space.









Support mixed and variable densities across the same row

AIR COOLED  
50+ kW/rack heat rejection

DELTA<sup>3</sup>  
Air Cooling Technology

HIGH DENSITY HYBRID  
350+ kW/rack heat rejection

DELTAFlow~

Liquid Cooling Technology  
Seamlessly integrates into existing heat rejection system

EXTREME HIGH-DENSITY HYBRID  
600+ kW/rack heat rejection

Direct Liquid Cooling (DLC)

High-density GPU servers & server racks

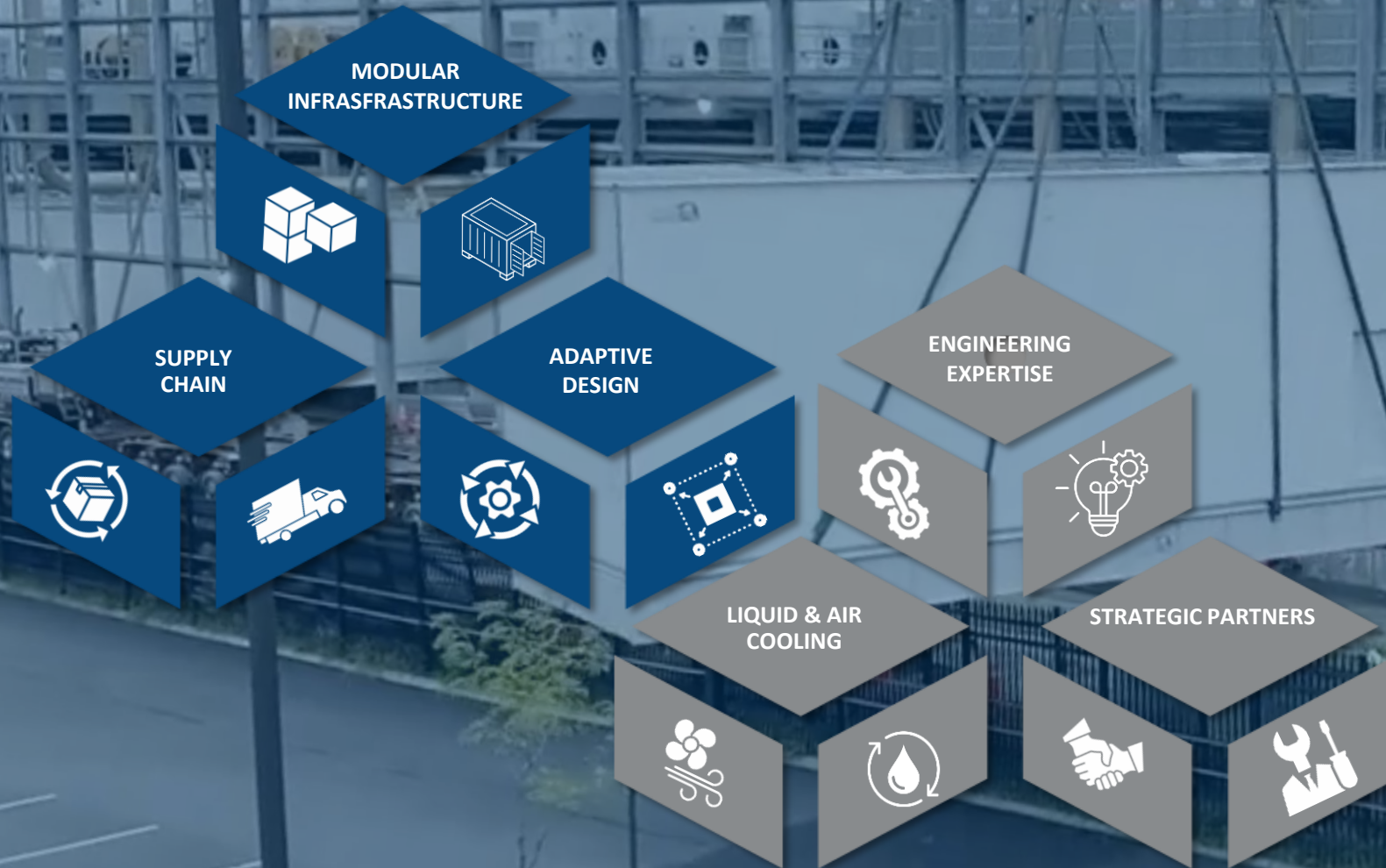
## Flexible Cooling Designs

Seamlessly transition between air, hybrid, & liquid cooling, or a custom blend, within the same data hall with 0 downtime. Scale up or out to support virtually any density & deployment demands - enterprise compute, Cloud, AI, & future applications / technology platforms.



## ALIGNED'S APPROACH:

WITH WORKLOADS, TECHNOLOGY, AND DEPLOYMENT ALL IN FLUX, A COMPLETE SET OF FOUNDATIONAL COMPONENTS IS REQUIRED TO ADAPT.





Thank you.

