

Over my years at Dell, Red8 and SHI I've consulted with hundreds of companies on their cloud strategy. I found a common pattern of success that mirrored the last great revolutionary technology change, electricity. This deck walks through the similarities to the 'current wars' of the early electric age to the current "premises wars" in cloud. Using the comparison to share a strategic approach and set of technologies as applications to help understand the landscape.

This version of the deck was used to present the talk track publically on a webinar available @  
[Data center and network transformation \(on24.com\)](https://on24.com)

This presentation is part of a larger experiment in embracing public, visual personal brand building, available at:  
<https://mattschneider-visualcv.github.io/>

VisualCV started as a Pathfinder's project at Dell Technologies while I was mentoring engineers through our career ladder into roles requiring panel & packet review, Principals & Distinguished.



# Introductions

## How AC/DC Foretold the Cloud

### *Recent Industry Updates & Product Emergence*

## Industry Updates

### *From a Financial Perspective*

## The New Landscape

### *Hyperscalers in your datacenter?*



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jcpenney



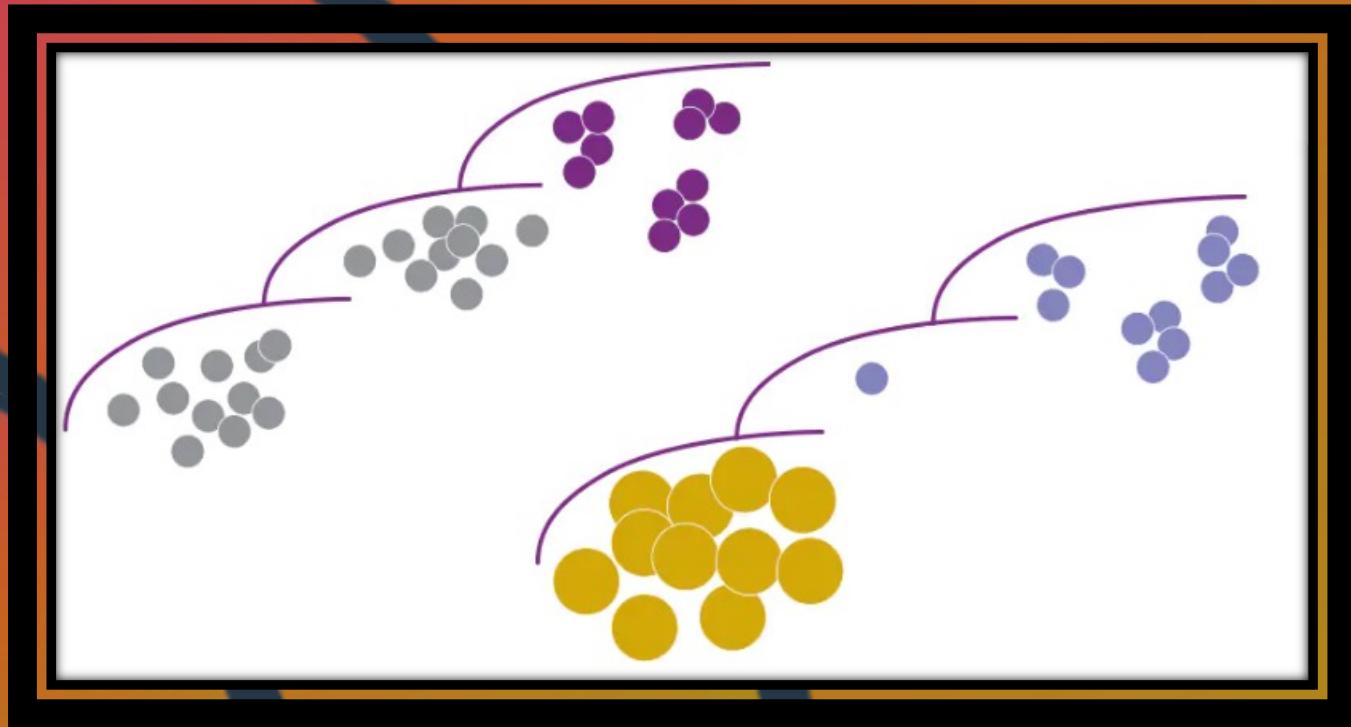
EMC<sup>2</sup>



DELL Technologies  
CTO Ambassadors



Matt Schneider | Field CTO - Advanced Solutions Group



Customers

Manufacturers

Analysts – Academia - Community

Matt Schneider | Field CTO - Advanced Solutions Group



Forbes  
Technology Council

451



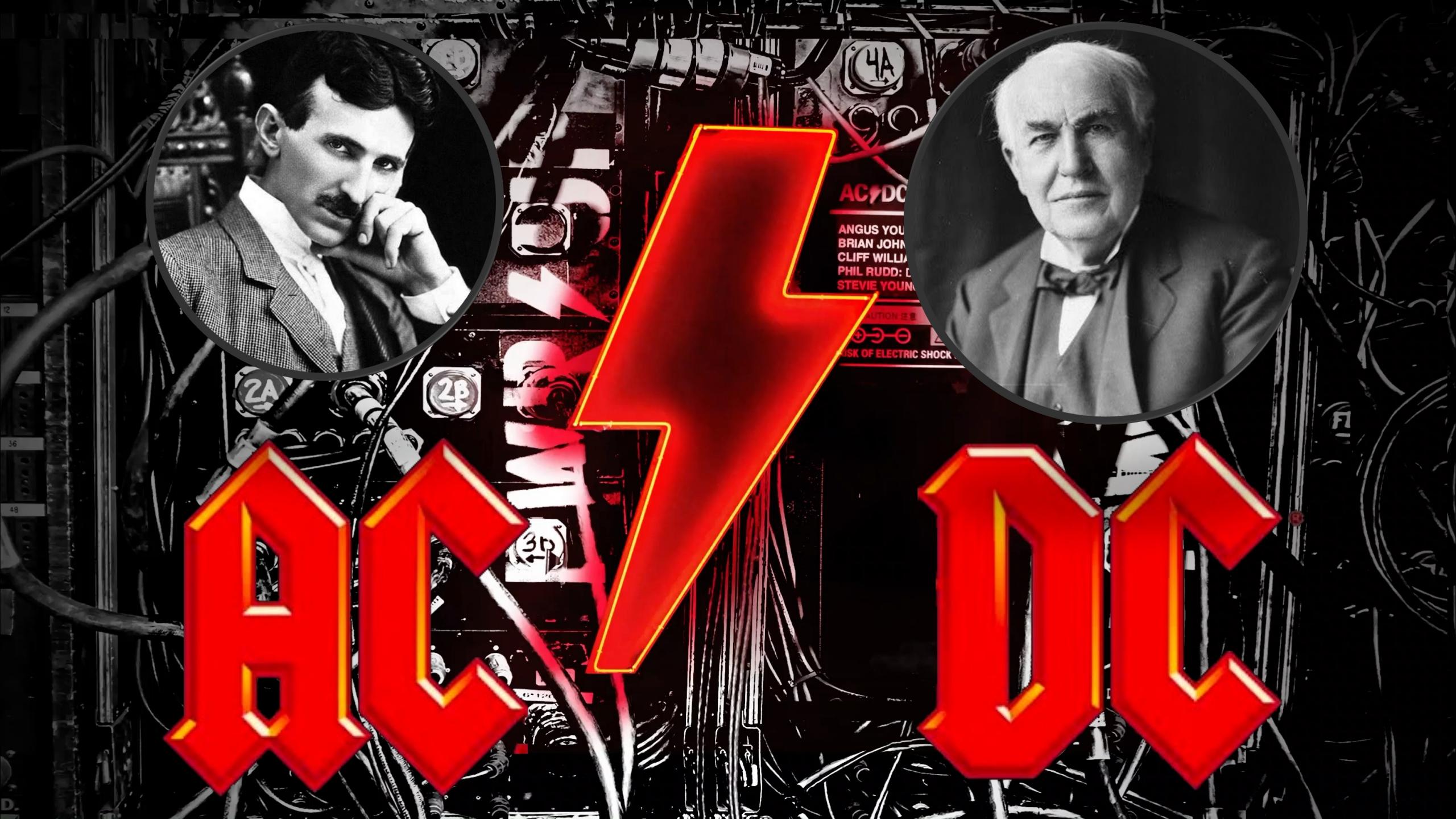
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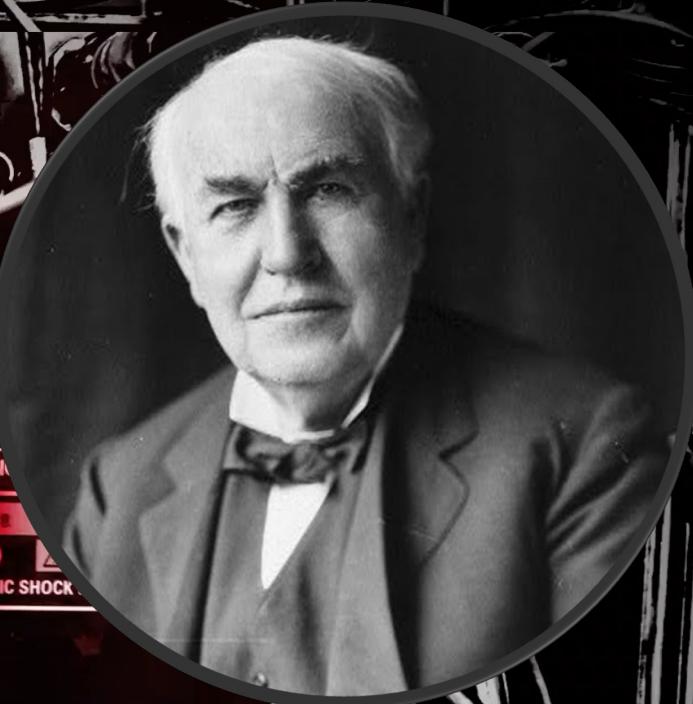
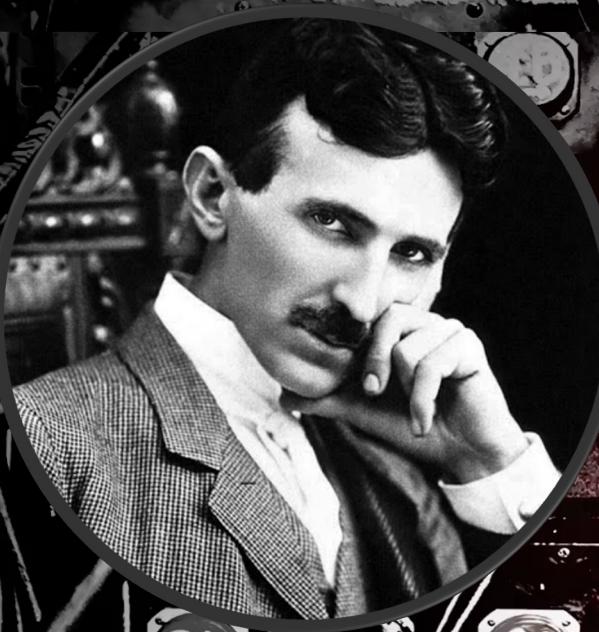


aka How AC/DC Foretold the Cloud

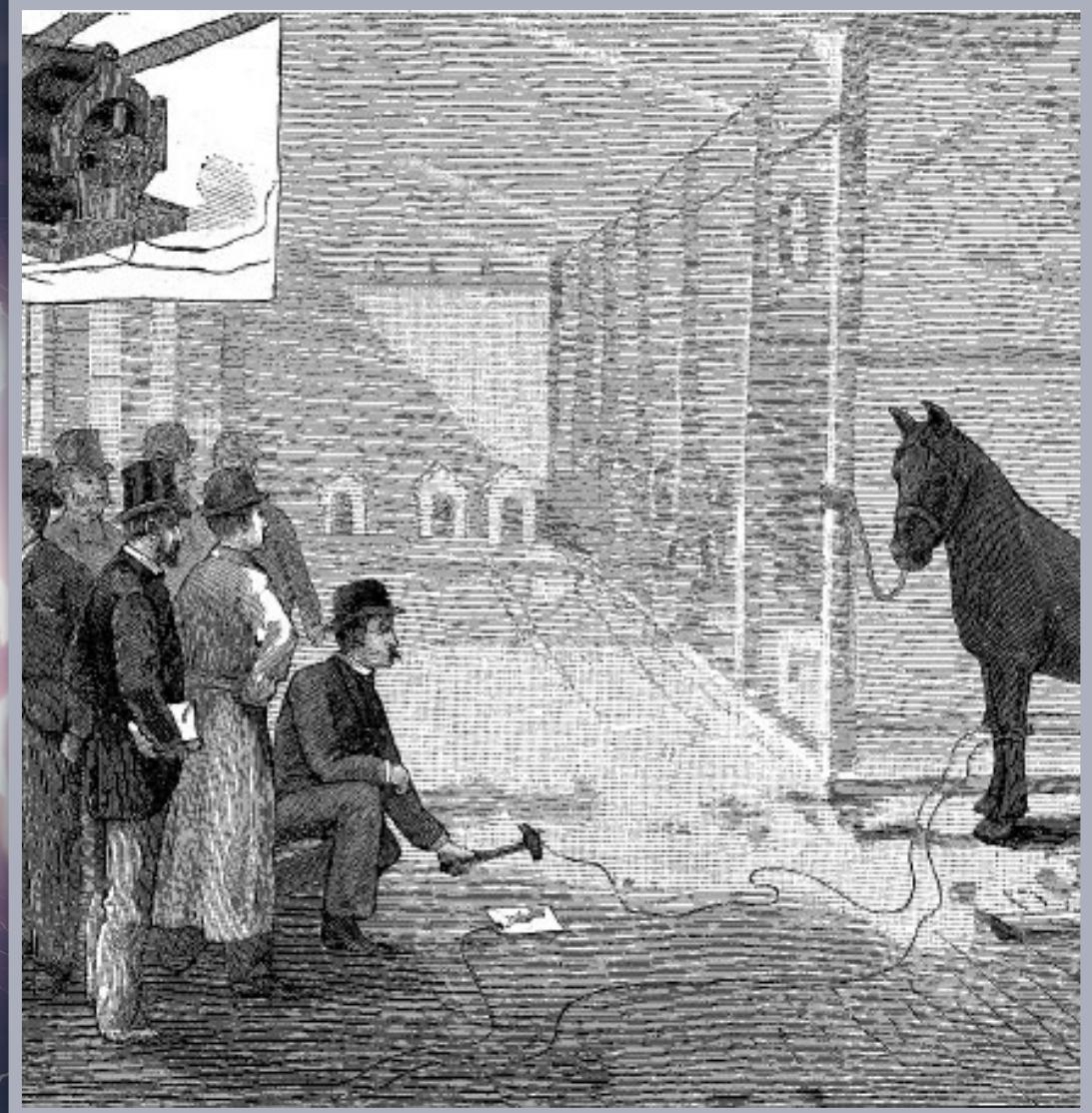


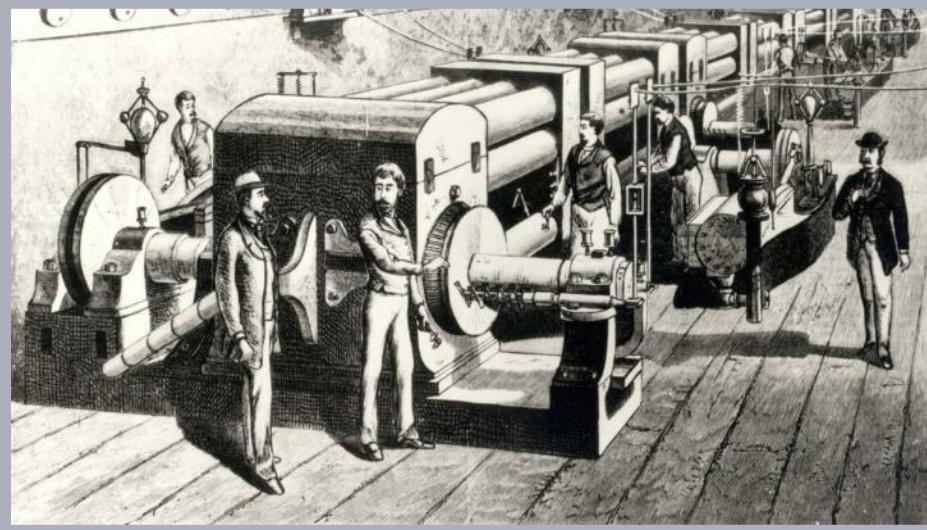
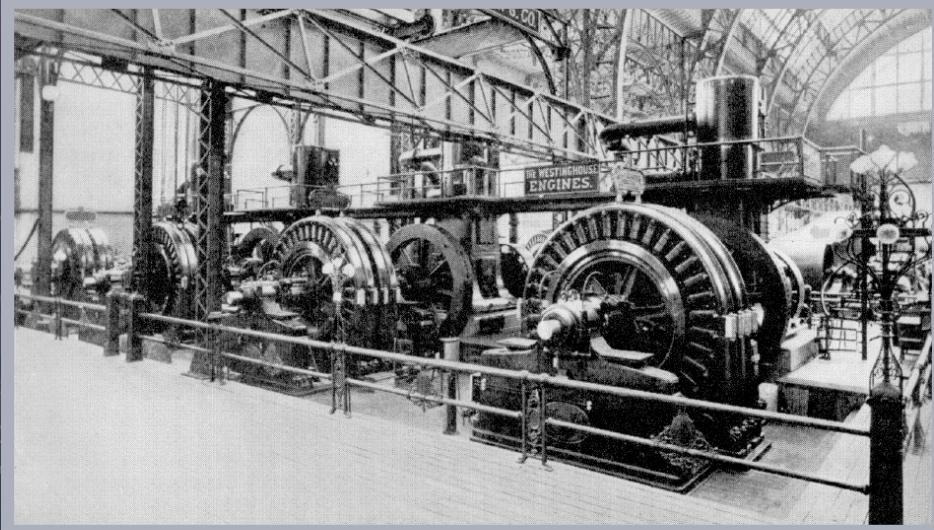
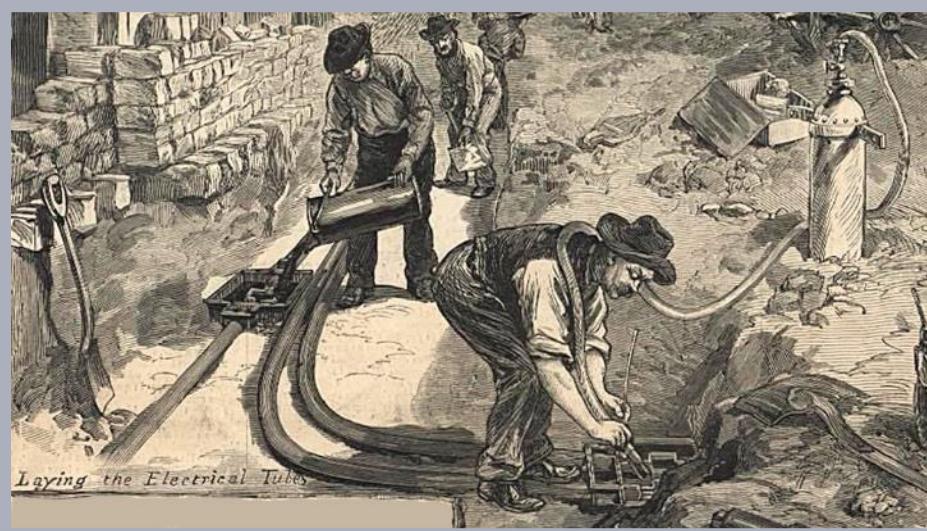
AC/DC

AC/DC









# THE CURRENT WAR

THE TALE OF AN EARLY TECH RIVALRY

**DC**

**DIRECT CURRENT**

The flow of electricity is in one direction only. The system operates at the same voltage level throughout and is not as efficient for high-voltage, long distance transmission.

Direct current runs through:

- Battery-Powered Devices
- Fuel and Solar Cells
- Light Emitting Diodes

"[TESLA'S] IDEAS ARE SPLENDID, BUT THEY ARE UTTERLY IMPRACTICAL."

- THOMAS EDISON

**LATE BLOOMER**

Thomas Edison, the youngest in his family, didn't learn to talk until he was almost 4 year old.

"Genius is one percent inspiration and ninety nine percent perspiration."

- Thomas Edison

**FALLING OUT**

Edison promised Tesla a generous reward if he could smooth out his direct current system. The young engineer took on the assignment and ended up saving Edison more than \$100,000 (millions of dollars by today's standards). When Tesla asked for his rightful compensation, Edison declined to pay him. Tesla resigned shortly after, and the elder inventor spent the rest of his life campaigning to discredit his counterpart.

**EDISON FRIES AN ELEPHANT**

In order to prove the dangers of Tesla's alternating

**AC**

**ALTERNATING CURRENT**

Electric charge periodically reverses direction and is transmitted to customers by a transformer that could handle much higher voltages.

Alternating current runs through:

- Car Motors
- Radio Signals
- Appliances

"IF EDISON HAD A NEEDLE TO FIND IN A HAYSTACK, HE WOULD PROCEED AT ONCE... UNTIL HE FOUND THE OBJECT OF HIS SEARCH. I WAS A SORRY WITNESS OF SUCH DOINGS, KNOWING THAT A LITTLE THEORY AND CALCULATION WOULD HAVE SAVED HIM 90 PERCENT OF HIS LABOR."

- NIKOLA TESLA

**WAR OF CURRENTS OFFICIALLY SETTLED**

In 2007, Con Edison ended 125 years of direct current electricity service that began when Thomas Edison opened his power station in 1882. It changed to only provide alternating current.

**NOBEL PRIZE CONTROVERSY**

**1847 BORN 1856**

Milan, Ohio      Birthplace: Mijlan, Croatia (now Yugoslavia)

Wizard of Menlo Park      Nickname: Wizard of the West

Home-schooled and self-taught      Education: Studied math, physics, and mechanics at The Polytechnic Institute at Graz

Mass communication and business      Forte: Electromagnetism and electromechanical engineering

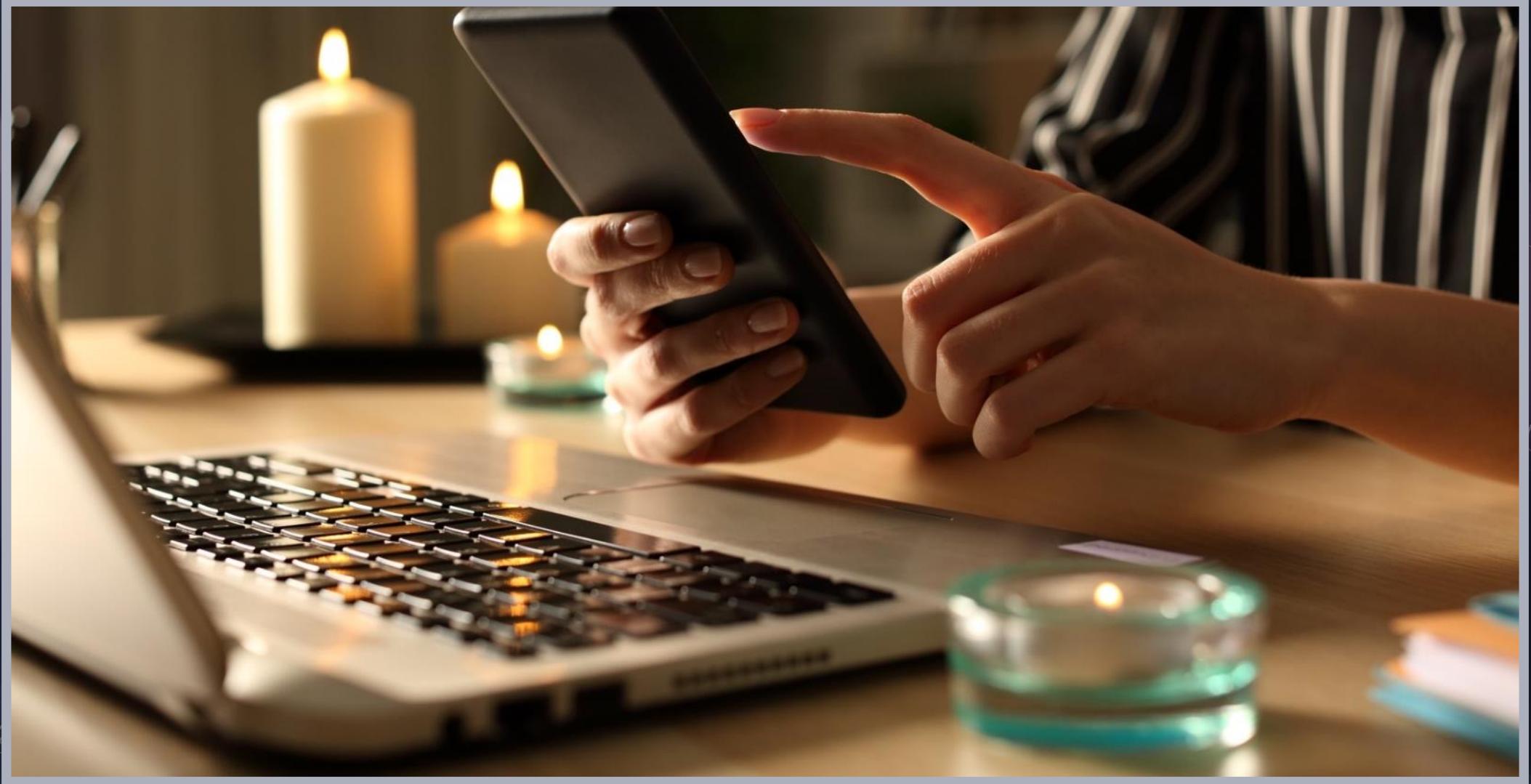
Trial and error      Method: Getting inspired and seeing the invention in his mind in detail before fully constructing it

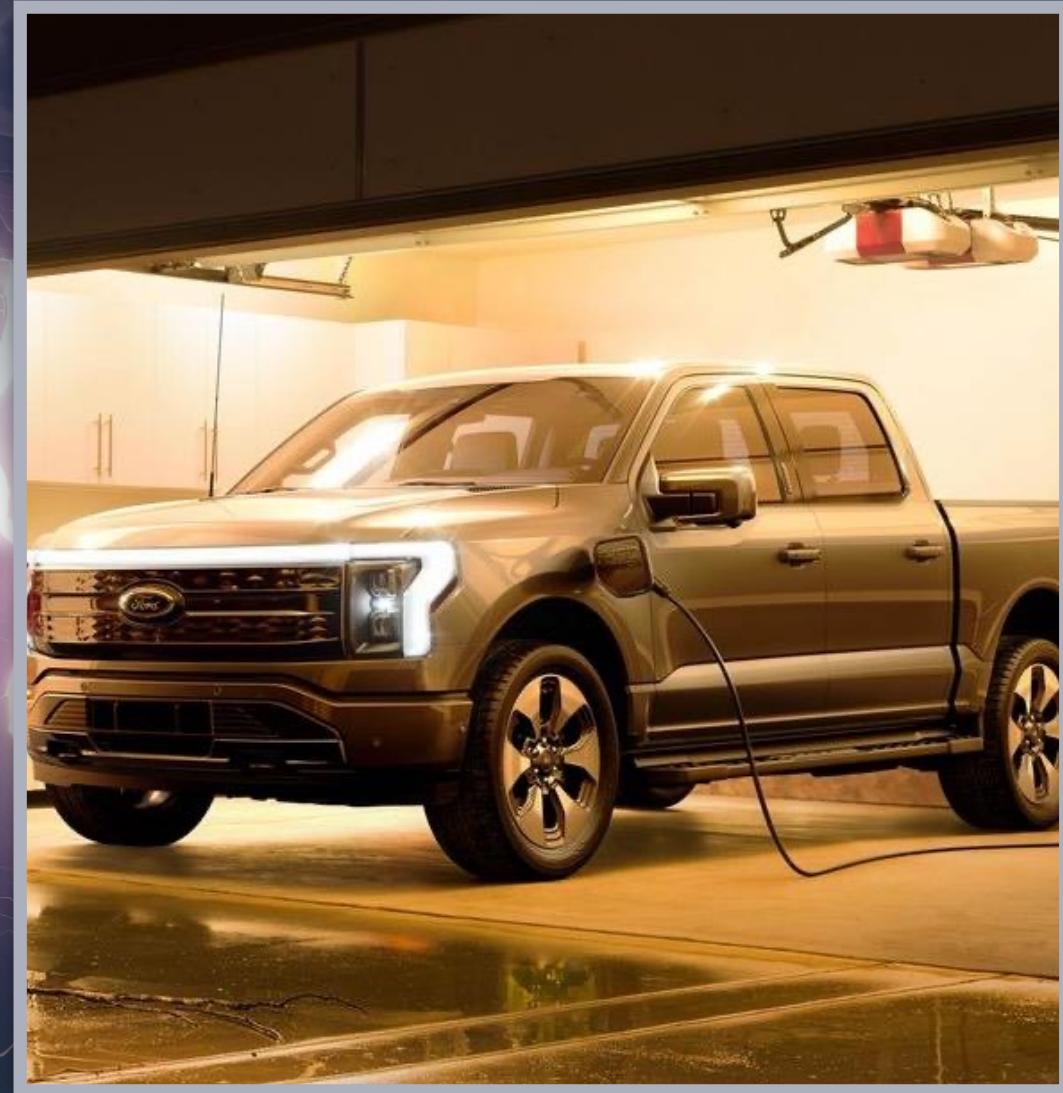
DC (Direct Current)      WAR OF CURRENTS: ELECTRICAL TRANSMISSION IDEA      AC (Alternating Current)

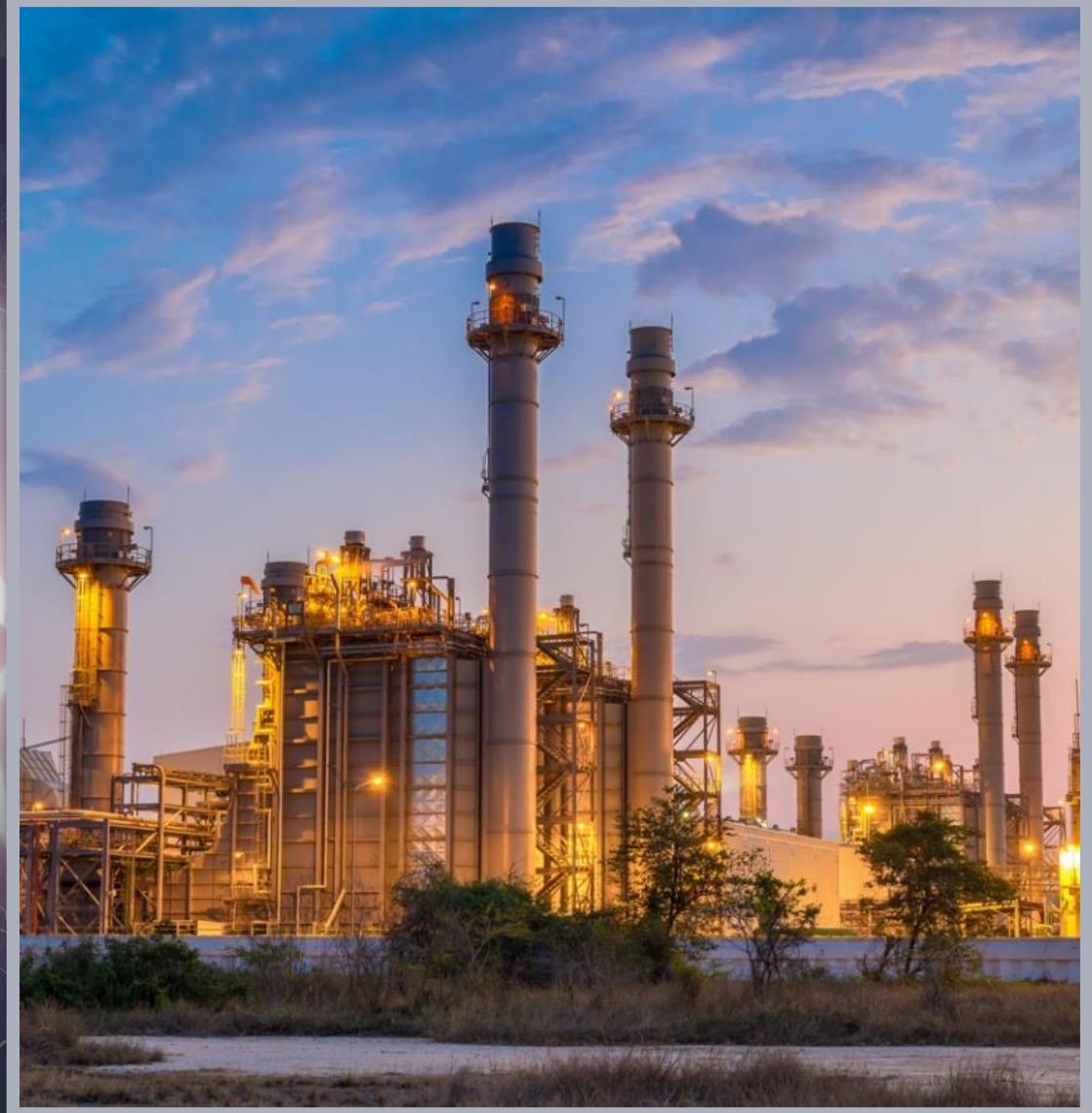
Incandescent light bulb; phonograph; cement-making technology; motion picture camera; DC motors and electric power	NOTABLE INVENTIONS	Tesla coil - resonant transformer circuit; radio transmitter; fluorescent light; AC motors and electric power generation system
1,093	NUMBER OF US PATENTS	112
0	NUMBER OF NOBEL PRIZES WON	0
1	NUMBER OF ELEPHANTS ELECTROCUTED	0





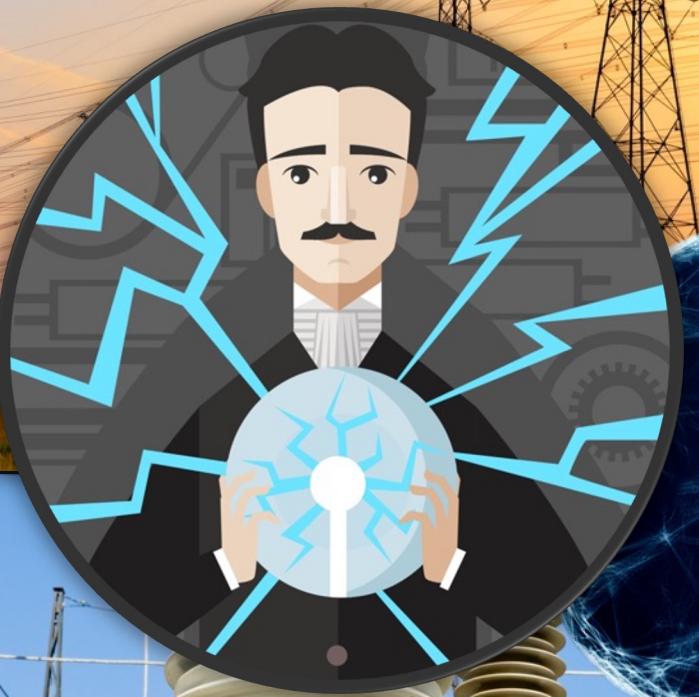




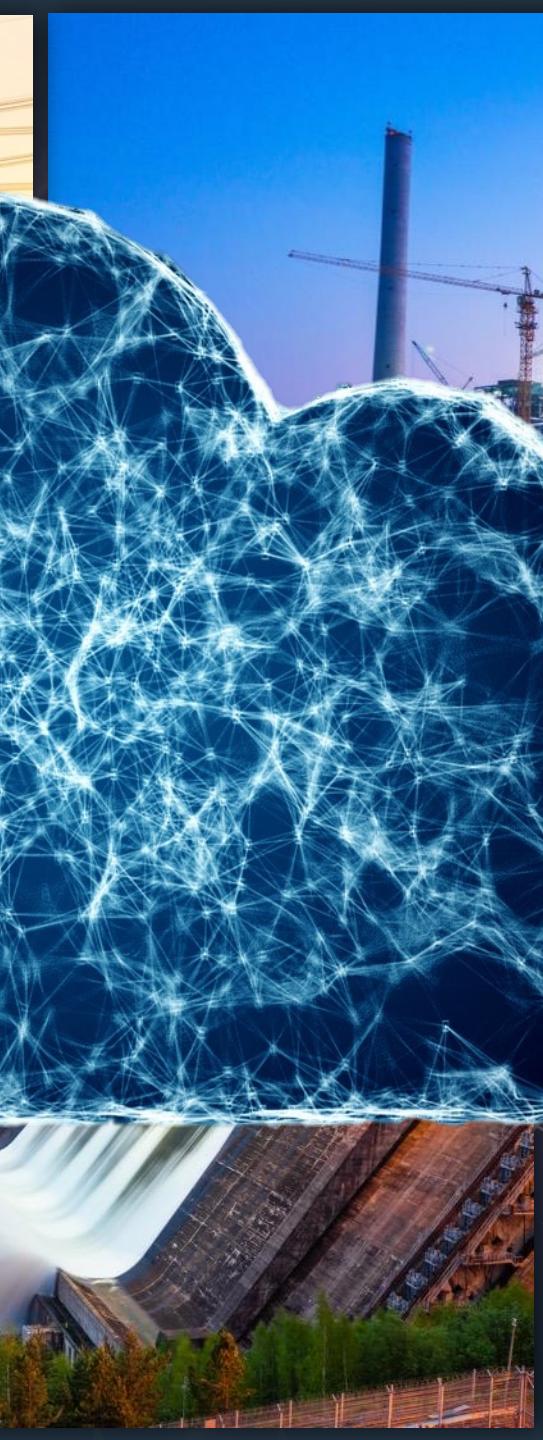




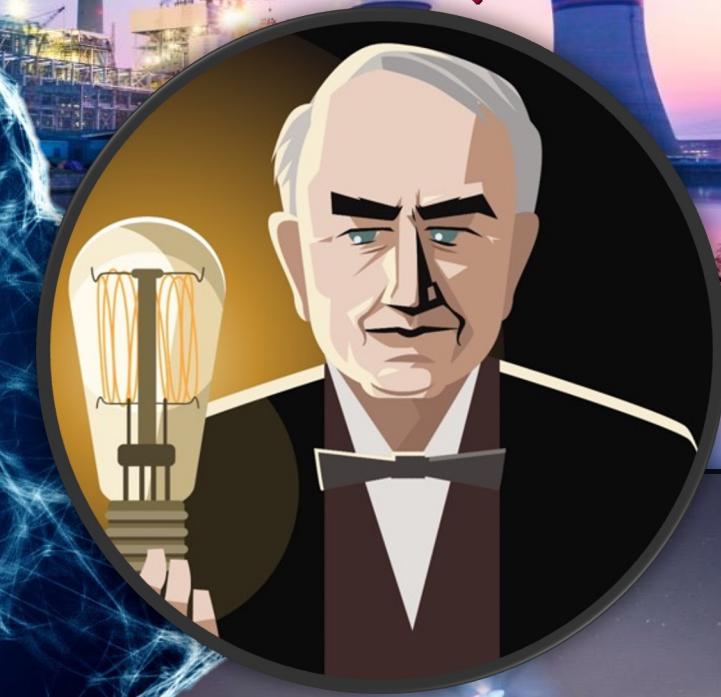
**AC**



PUBLIC



**DC**



PRIVATE

**AC**



**PUBLIC**



**DC**



**PRIVATE**

**CONSUME**  
**CONTEXTUAL**

**CONSTRUCT**  
**CORE**

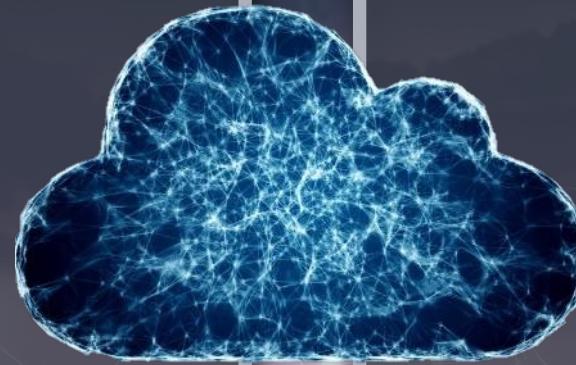


**CONSUME**  
CONTEXTUAL

**CONSTRUCT**  
CORE



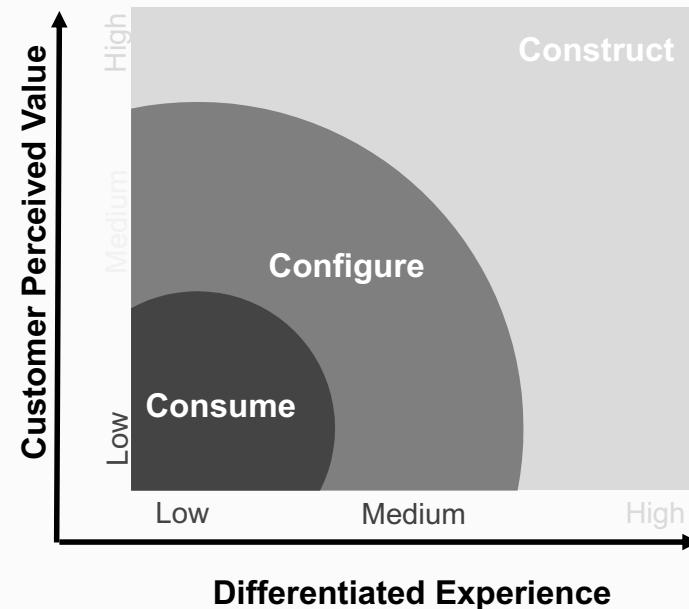
# CONSUME CONTEXTUAL



# CONSTRUCT CORE



## Core v Context Decision Matrix



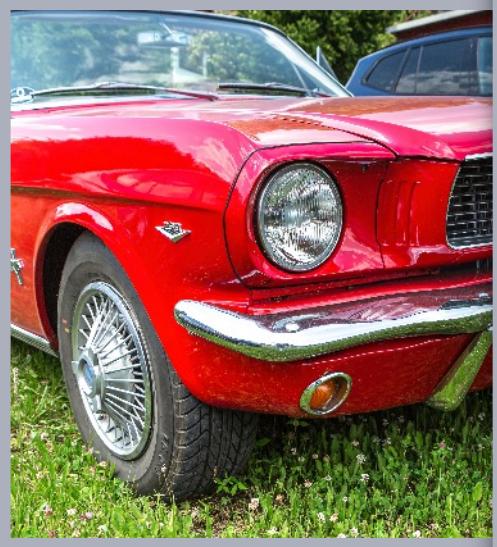
Construct experiences and services.

Configure Services, SDK, APIs

Consume Commercial Services and Products.



OSHI



SHI



SHI







# Reality



**The Cost of Cloud, a Trillion Dollar Paradox**

by Sarah Wang and Martin Casado

cloud computing • enterprise & SaaS • networking • growth (late stage venture) • metrics • cloud infrastructure • trends 2021

[f](#) [in](#) [t](#)

There is no doubt that the cloud is one of the most significant platform shifts in the history of computing. While the cloud already impacted hundreds of billions of dollars of IT spend, it's still in early innings and growing rapidly. In 2020, there was over \$100B of annual public cloud spend. This shift is driven by an incredibly powerful value proposition: the ability to access infrastructure available immediately, at exactly the scale needed by the business — driving efficiencies both in operations and economics. The cloud also helps cultivate innovation as company resources are freed up to focus on new products and growth.

**Worldwide Enterprise Spending on Cloud and Data Centers**

■ Data Center Hardware & Software ■ Cloud Infrastructure Services

Year	Data Center Hardware & Software (\$B)	Cloud Infrastructure Services (\$B)
2010	~75	~10
2011	~78	~12
2012	~80	~20
2013	~82	~40
2014	~84	~70
2015	~86	~180
2016	~84	~300
2017	~86	~450
2018	~92	~650
2019	~94	~950
2020	~90	~1250

Source: Synergy Research Group

source: [Synergy Research Group](#)



APRIL 30, 2019

# Forbes

18TH ANNUAL  
MIDAS LIST  
WORLD'S BEST TECH INVESTORS

AIRBNB, LYFT AND SLACK BACKER  
**MARC ANDREESSEN**  
"THE 21ST CENTURY IS THE CENTURY OF DISAGREEABILITY."

## BLOWING UP THE STARTUP MODEL

ANDREESSEN HOROWITZ INTENDS TO (AGAIN) UPEND HOW ENTREPRENEURS GET FUNDED, MAKING MASSIVE BETS ON DISSIDENT FOUNDERS— AND OPTING OUT OF VENTURE CAPITAL'S RULES ENTIRELY.

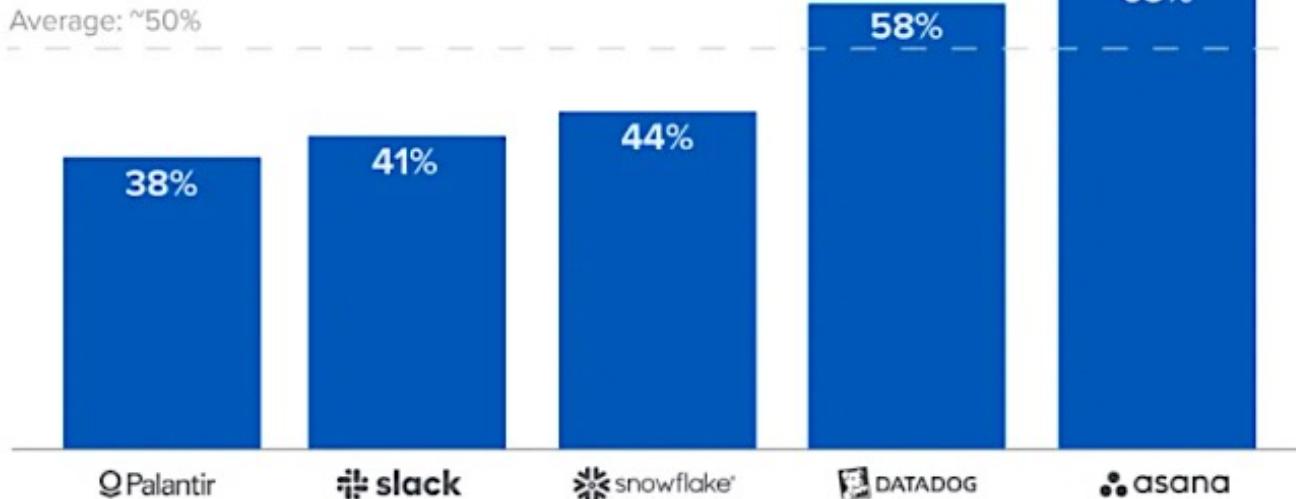
## The Cost of Cloud: a Trillion-Dollar Paradox

by Sarah Wang and Martin Casado

cloud computing • enterprise & SaaS •  
networking •  
growth (late stage venture) • metrics •  
cloud infrastructure • trends 2021



### Estimated Annualized Committed Cloud Spend as % of Cost of Revenue



Source: Company S-1 and 10K filings

APRIL 30, 2019

es

AIRBNB, LYFT AND  
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source: Synergy Research Group

## The Cost of Cloud, a Trillion Dollar Paradox

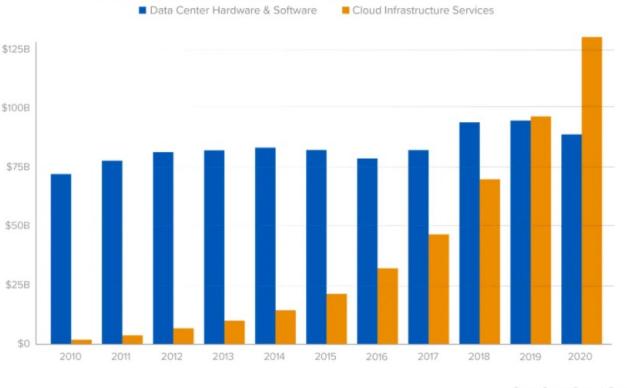
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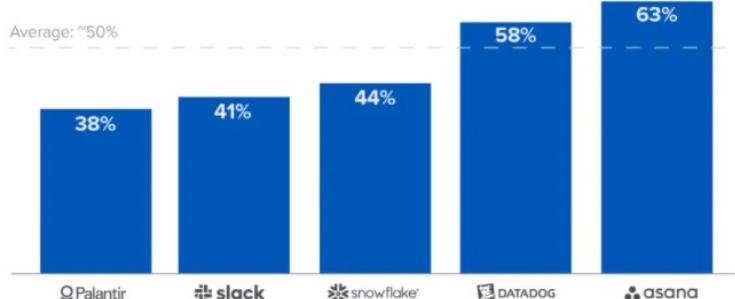
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Worldwide Enterprise Spending on Cloud and Data Centers



a16z

Estimated Annualized Committed Cloud Spend as % of Cost of Revenue



Source: Company S-1 and 10K filings

Cloud spend as a KPI

Incentivize the right behaviors

Optimization, optimization, ....

Think about repatriation upfront

Incrementally repatriate

SHII

# MARKET TRENDS

## Repatriation, 2018

40%

Workloads considered for repatriation - Public cloud is **NOT meeting expectations:** performance, availability, and costs as top issues<sup>(1)</sup>

50%

dedicated infrastructure  
**on-premises**

50%

dedicated infrastructure  
**off-premises**  
as hosted infrastructure



<sup>(1)</sup>451 Research's Cloud repatriation: What it is, what it isn't, and why it's not going away

# MARKET TRENDS

## Repatriation, 2021

48%  
Respondents who moved workloads away from hyperscale providers.



49% self-managed infrastructure  
(on-prem or colo)  
  
51% Managed Infrastructure  
(private cloud, smaller cloud, metal services, managed colo)

(1) Cloud repatriation: What it is, what it isn't, and why it's not going away

# Emergence

DCIaaS

DCaaS



# The New Playing Field

DCIaaS

DCaaS





Anthos

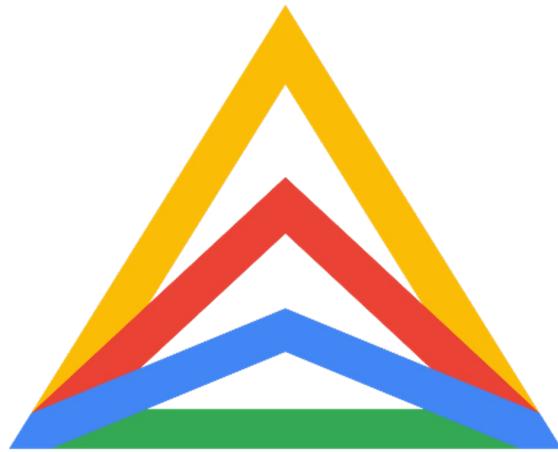


Azure Stack



DELL EMC

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# Anthos



# Anthos Platform Components

# Anthos

## Anthos Multi-Cluster Management

### Application Development

*Cloud Run for Anthos, Hybrid AI, Google Cloud Marketplace, Cloud Build*

### Management Console

*Google Cloud Console*

### Operations

*Cloud Logging / Cloud Monitoring / Cloud Trace*

### Policy Management

*Anthos Config Management*

### Service Management

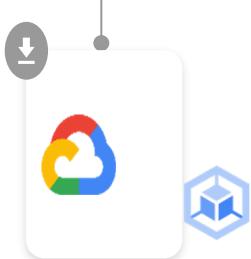
*Anthos Service Mesh*

### Kubernetes API

*Anthos Connect Gateway*

## Anthos Clusters

Cluster Mgmt | Lifecycle Mgmt | Configuration | Policy | Service Mgmt | Operations | Security



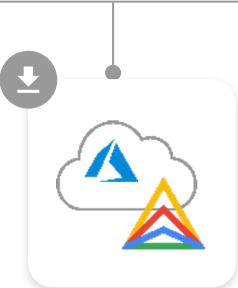
Google  
Cloud



AWS



vSphere



Azure \*

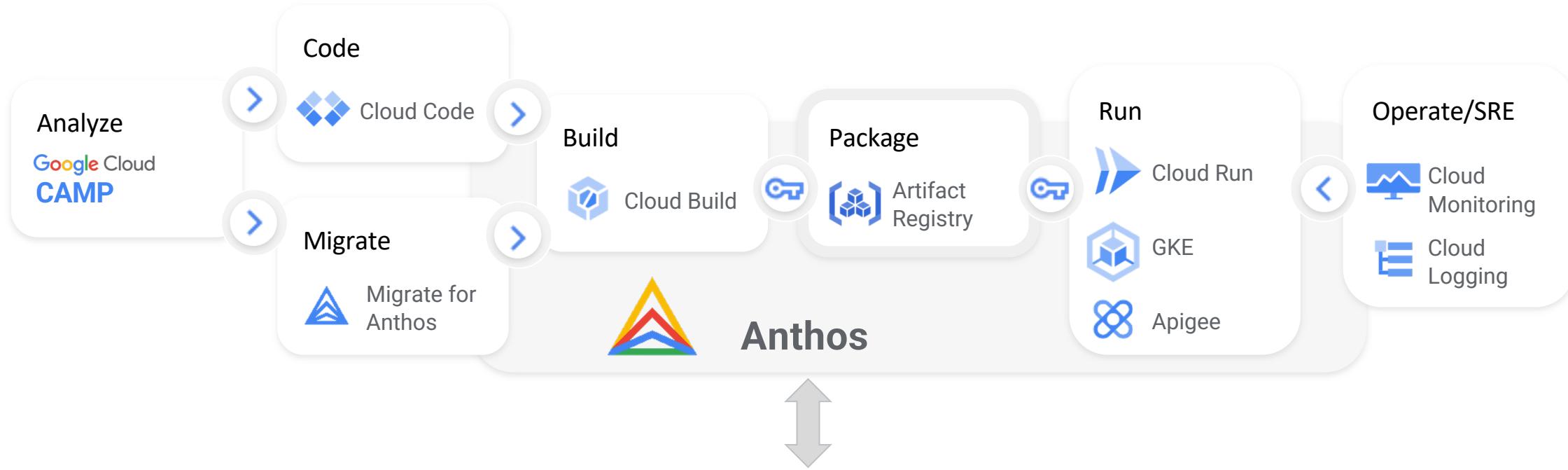


Bare metal servers



Attached  
Clusters

# Google Cloud Offers an End-to-end Solution for Application Modernization



- Connectivity via Google's world-class network
- Access to comprehensive, pluggable set of services such as ML/AI toolkits and data analytics



Anthos



Azure Stack



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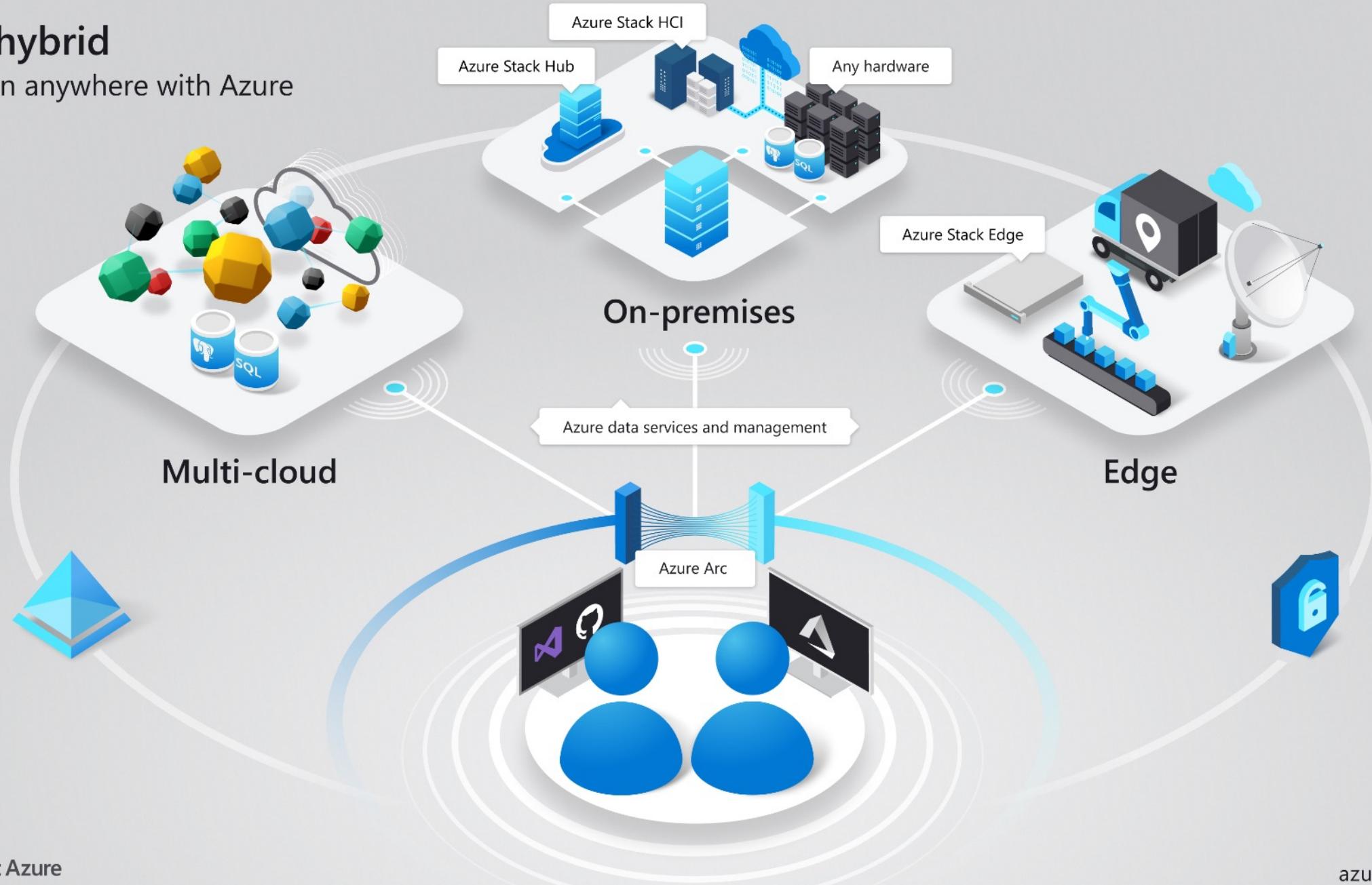
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Azure Stack

# Azure hybrid

Innovation anywhere with Azure



# Modernize datacenters with Azure Stack

## Azure Stack HCI

Hyperconverged solution.



Native Azure Arc integration.  
Scalable virtualization and storage.  
AKS on Azure Stack HCI.

## Azure Stack Edge

Cloud-managed appliance.



Compute, AI, and  
IoT at the Edge.

## Azure Stack hub

Cloud-native integrated system.



Disconnected scenarios.





Anthos

switch



Azure Stack



EQUINIX



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# Extend the Cloud Anywhere You Need It, with AWS Outposts

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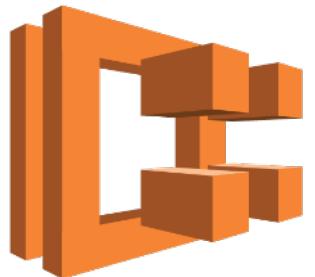


## Deliver a truly consistent hybrid cloud experience

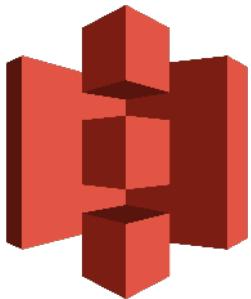
Bring AWS infrastructure and services to your on-premises facilities with AWS Outposts, a fully managed service that brings the same AWS infrastructure, services, APIs, and tools to virtually any on-premises facility. Ideal for workloads with low latency, local data processing, or data residency requirements, AWS Outposts extends AWS services to your own data center or co-location facility.



Amazon EC2



AWS ECS



Elastic  
Beanstalk



Amazon  
**CloudTrail**





Anthos



Azure Stack



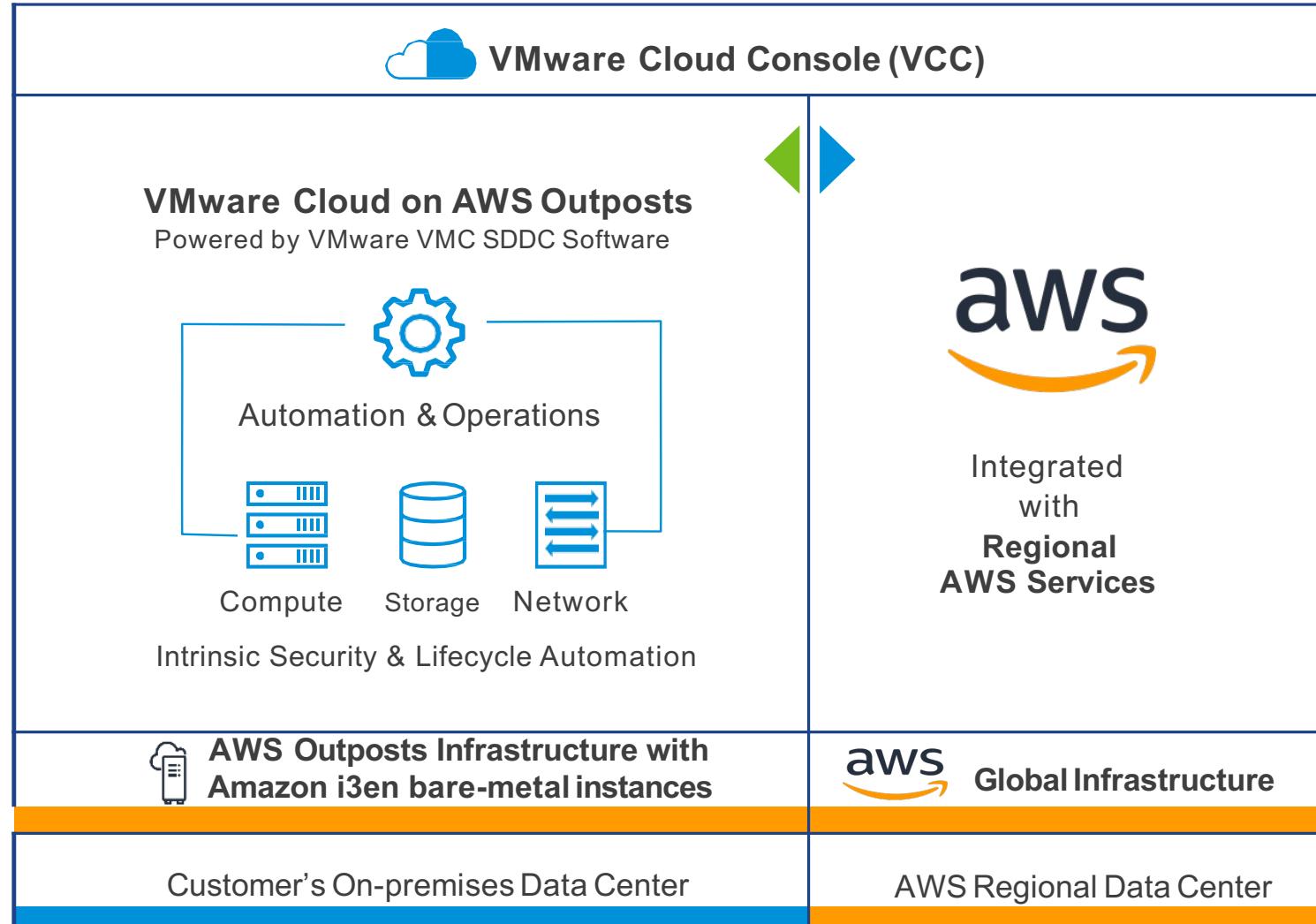
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# VMware Cloud on AWS Outposts

Get the agility and innovation of VMware Cloud - delivered as a service on-premises



- VMware SDDC running on AWS Outposts bare metal delivered as-a-service on-premises
- Fully managed service with VMware as single point of contact for support
- Compatible infrastructure and consistent operations
- vSphere workload portability & hybridops with unified hybrid control plane
- Migration at scale without downtime with VMware HCX
- IT capacity extension to VMware Cloud on AWS
- Direct access to 200+ regional AWS services
- Ideal as an Infrastructure modernization alternative to capital IT refresh
- Can extend VMware Cloud on AWS deployments on-premises

# Consistent Infrastructure for Data Center, Edge, and Cloud





Anthos



Azure Stack



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# Q & A

