

The background features a vibrant, abstract design with a color gradient from dark blue on the left to bright yellow and white on the right. The design consists of overlapping, wavy horizontal bands and a radial pattern of lines emanating from a bright white point on the right side, creating a sense of motion and energy.

CISCO *Live!*

Let's go



The bridge to possible

Your Data Center is back in Vogue and cool....*(again)*

Roger Dickinson
@dcgubbins

CISCO *Live!*

BRKCLD-2280

Agenda

- Trends
- Designers
- Models



Trends

The Data Center Fashion Stakes

Mainframes & GRUNGE



1990s

rugged, utilitarian look, with mainframes and bulky servers

Dot-Com CHIC



Influx of web-based applications and e-commerce

Virtualization VOGUE



2000s

shedding physical hardware for more streamlined virtualization

Cloud COUTURE



2010s

Flexible, fast paced hyperscaler trendsetters

Sustainability ACTIVEWEAR



2020s

Eco-friendly, renewable and efficient

Tech MINIMALISM



Today

Simplicity and efficiency, seamless



“One day you are in. The next day you are out” – Heidi Klum

CISCO *Live!*

books of ESI on the General
connectivity to the internet.

When ESI is connected the solo server starts clocking up "zone lost errors."

within hours and I day the longer
to the ~~server~~ ~~SOIS~~ are lost. (Hr
Apparently there is no way of interrogating the
other ~~server~~ ??? I will confirm this.



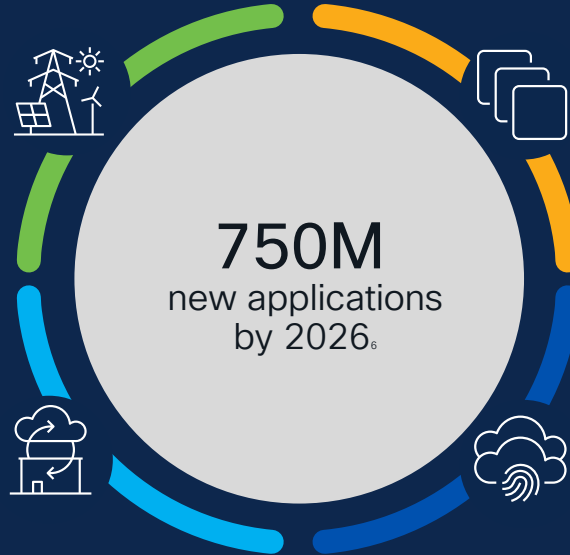
Application Redefining Infrastructure

Sustainability

Performance, Power and Footprints
for up to **50x** that of a typical commercial office building ⁵

Hybrid Multicloud

82% of companies are operating both on-prem and in the cloud³ while **30%** are moving to intelligent workload placement ⁴



Application Architecture

80% plan full GenAI adoption in 3 years with **50%** of data being generated at the edge ¹

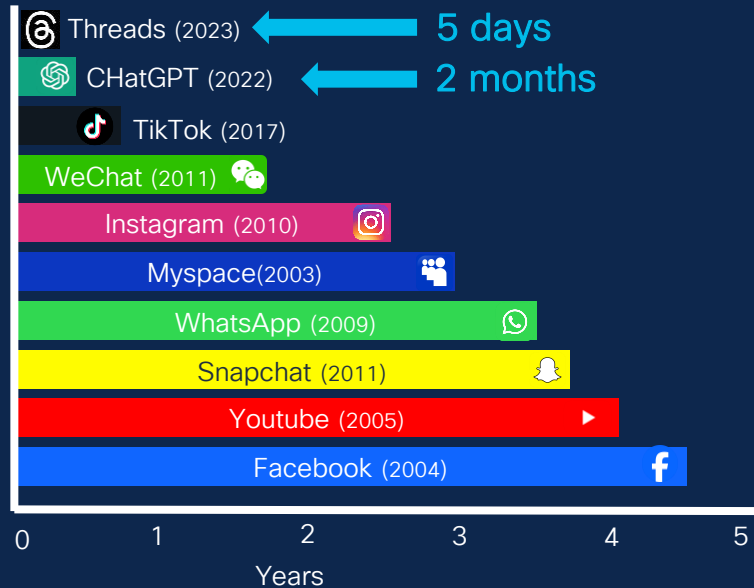
Security

69% of organizations say multcloud security configuration challenges led to data breaches or exposures ²

Sources: 1. Gartner 2. Osterman Research 3. Cisco 4. Flexera 5. EERE 6. IDC

GenAI

Time to Reach 100M users



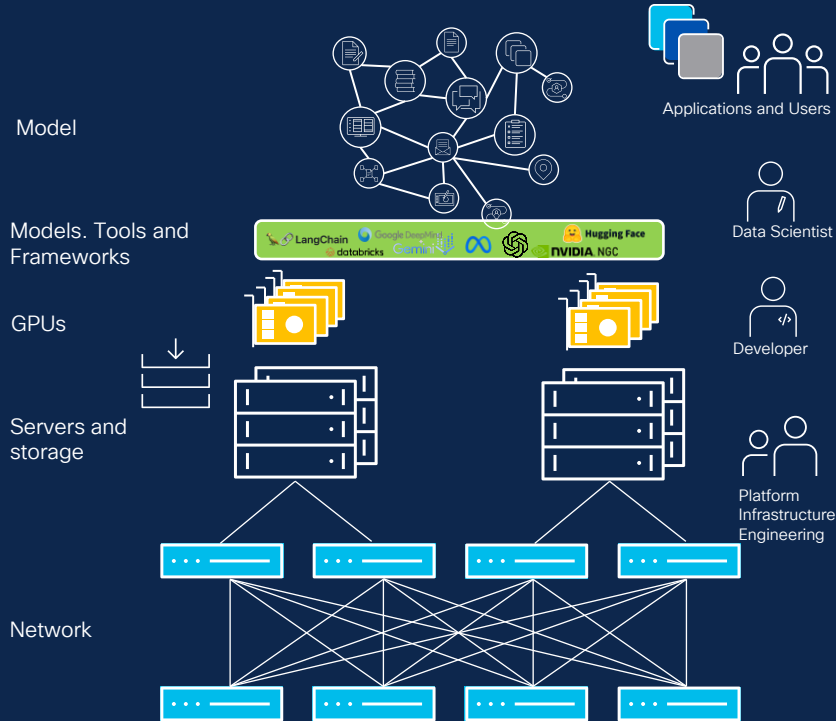
visualcapitalist.com

61% said they have a maximum of one year to deploy their AI strategy or else it will have a negative impact on business.

86% of companies not fully ready to integrate AI into their businesses.

[Cisco AI Readiness Index](#)

GenAI Fundamentals



Pre-training – a machine learning model learns patterns and relationships within a dataset.

Fine Tuning – adapting a pre-trained generative AI model to a specific task or domain

Inference – Once the model is trained, it can be deployed where the model takes new, unseen data as input and produces predictions or decisions without further adjusting its parameters

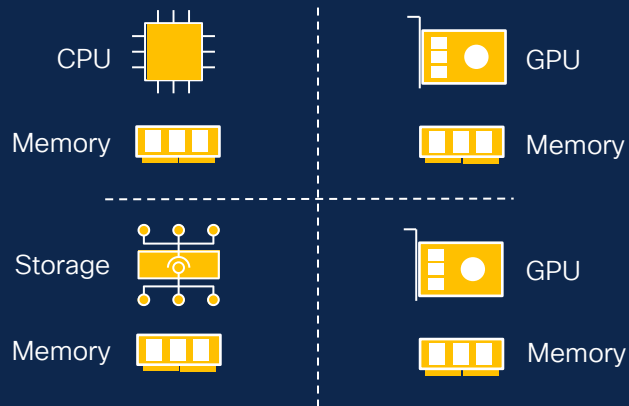
Q. Where is the best location to train and Inference?

A. IT depends!

A. It depends on IT!

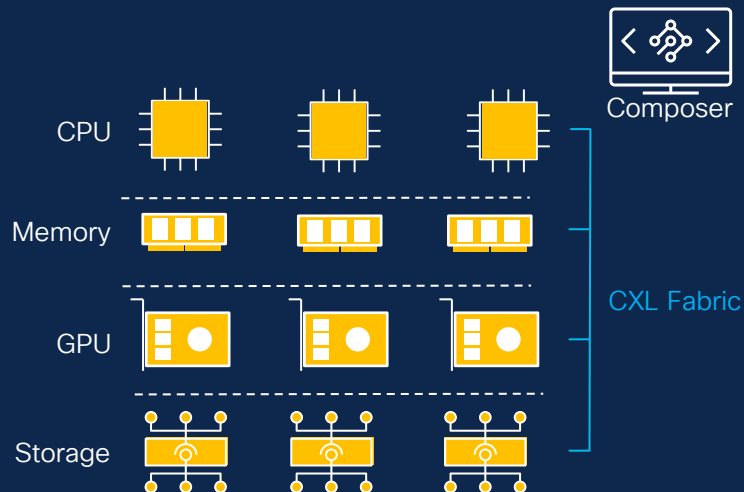
Compute Express Link (CXL)

Today



Memory Constrained to device
Under utilization

Tomorrow

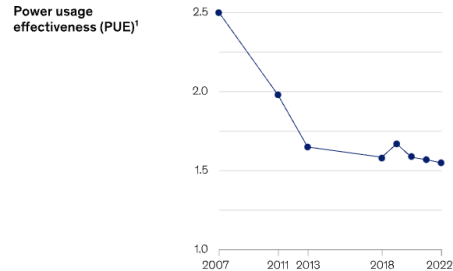


Optimized Performance
Composable Infrastructure

Power, Cooling and Sustainability

PUE has been flatlining over the few years

Gains in power usage efficiency have stalled during the past decade.



¹A measure that shows the amount of power used by the computing equipment in a data center relative to its total energy consumption. The closer PUE is to 1, the more efficient a data center's power usage is.
Source: Uptime Institute Intelligence

McKinsey & Company

(Large Data Centers require around 100 Megawatts of Energy = 80,000 homes³)



Sustainable Data Centres



Liquids conduct heat up to 1,000 times better than air¹

1. Rear-door heat exchangers
2. Direct-to-chip
3. Immersion

I'm off to reboot the server!



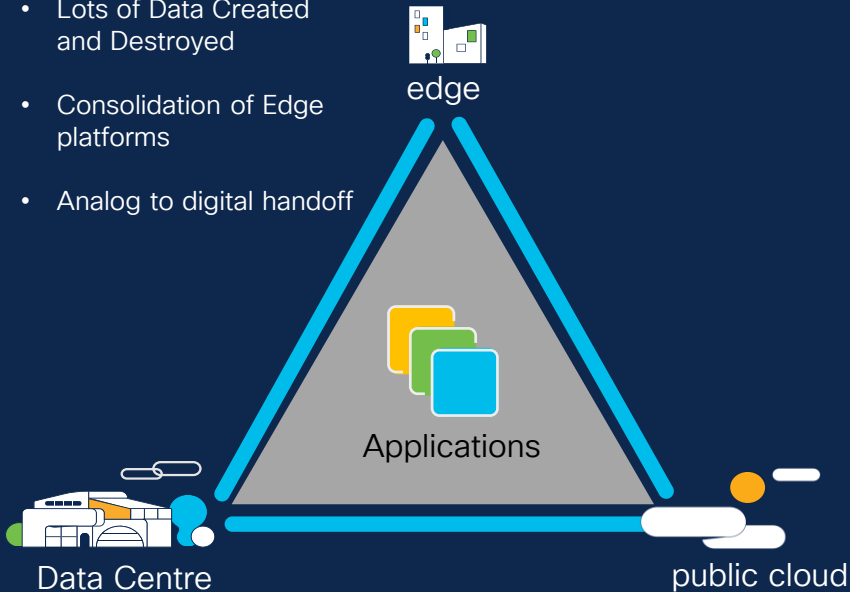
¹ [datacenterfrontier](#)

² McKinsey

³ US Department of Energy

The Edge

- Lots of Data Created and Destroyed
- Consolidation of Edge platforms
- Analog to digital handoff

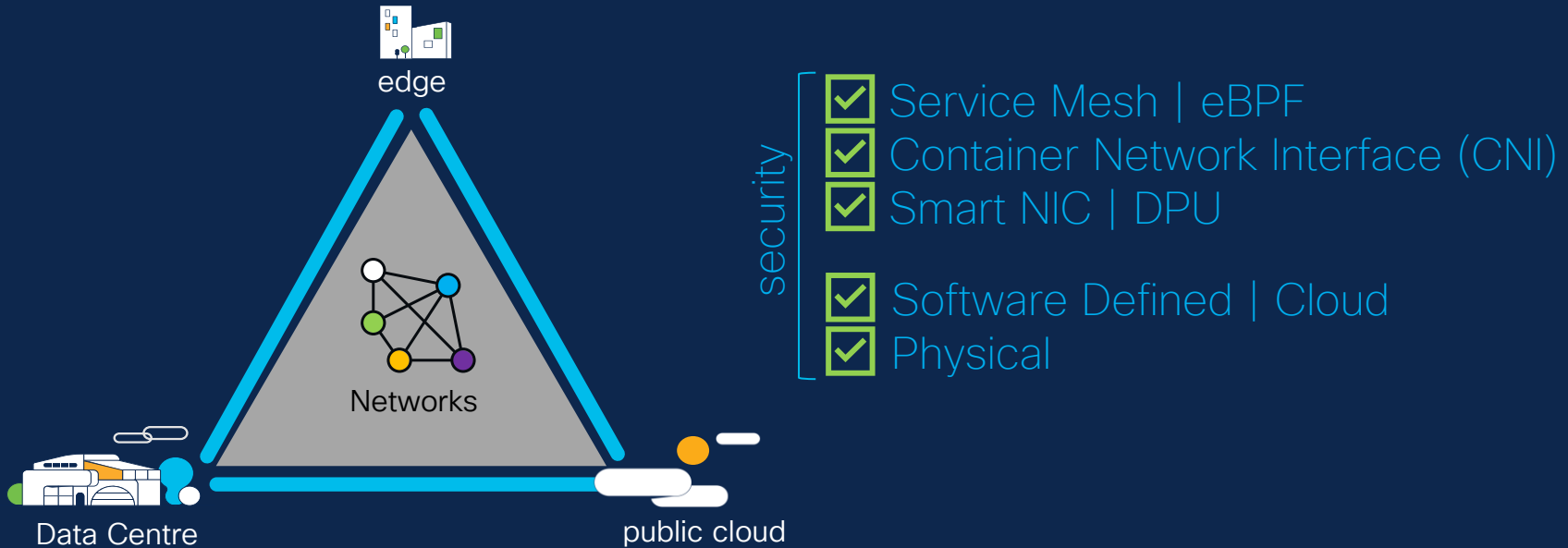


Latency – process data as close to source as possible reducing round trip time. Applications such as AR/VR, AI, Security and real time analytics.

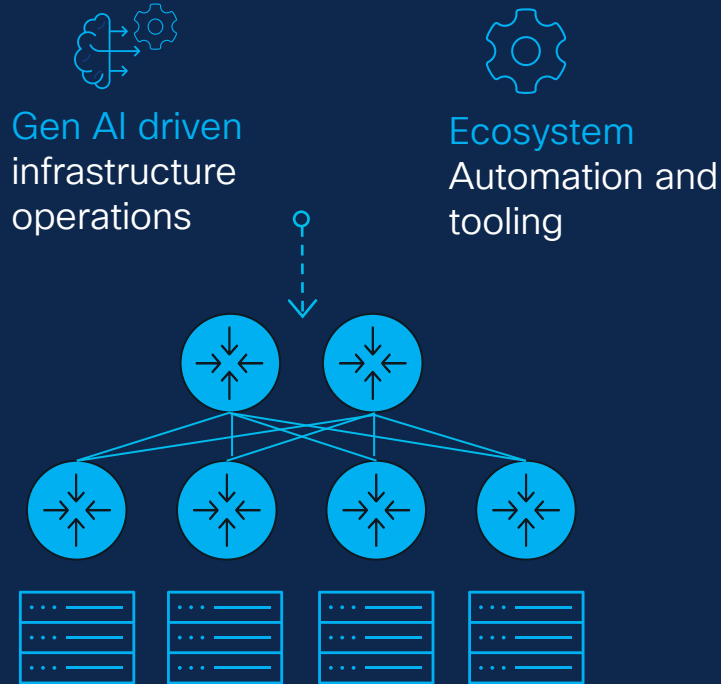
Bandwidth Optimization – adapting a pre-trained generative AI model to a specific task or domain

Autonomy – Either due to regulations that require data processing within a specific geography or use cases where the edge may be isolated for a time.

Networking Abstractions



Orchestration and Automation



- Create Value
- Control Costs
- Improve Operational Efficiency

Source: IDC

“By 2026, 30% of enterprises will automate more than half of their network activities...”

By 2027, 90% of enterprises will use some AI functions to automate Day 2 of network operations...”

Source: Gartner

People

71%

of Data Centre management leaders are concerned about lack of qualified staff.

Staff being hired by competitors.

Lack of qualified talent on a global scale.

Impending retirement wave in mature markets.

Designers

Cisco Data Center and Cloud

Infrastructure Modernization



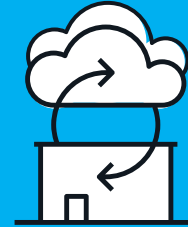
On-premise
sustainable and
secure infrastructure
platforms

Application Modernization



Any Application
Anywhere

Hybrid Multicloud



Cloud neutral software
platforms for consistent
capabilities across
locations



Infrastructure Modernization

Operations

Observability

Security

Compute

Networking

Data Center Networking



Operations

Observability

Security

Compute

Networking

**Keep data, workloads,
and applications
connected and secure**



Data, workloads and apps stay securely connected



Increased visibility, automation and rapid troubleshooting



Cisco silicon and Nexus series delivering industry-leading performance.

Compute, Data and Storage



Operations

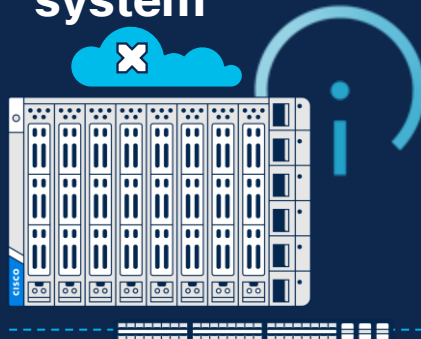
Observability

Security

Compute

Networking

Compute,
networking and
storage in one
system



It's not a rack server or a blade server. It's both, built for hybrid, hyper distributed workloads.



Intersight automates server, fabric and storage provisioning, with unified policies and third-party hardware support



Purpose-built for sustainability and designed for innovation coming in the next decade

Infrastructure Modernization

Full Stack Security



Operations

Observability

Security

Compute

Networking

**Secure
infrastructure,
applications
and users**



If it's connected, it's protected



Secure everything and everyone your network touches. Cloud-native and cloud-delivered.



Complete cloud protection with a powerful, flexible framework for a hybrid and multicloud world that protects all your apps, data, and clouds.

Infrastructure Modernization

Full Stack Observability



Operations

Observability

Security

Compute

Networking

**Secure
Experiences
with unified
visibility &
insights**



Deliver great digital experiences by observing apps and the networks they run on. In real time.



Monitor traditional and microservices-based apps are performing, wherever they live.



Build observability solutions across the full stack based by bringing together data from multiple operation domains

Infrastructure Modernization Operations



Operations

Observability

Security

Compute

Networking

Integrate Cisco infrastructure into any **Operational model**



Traditional IT

Infrastructure service delivery initiated via CLI, UI or API



DevOps

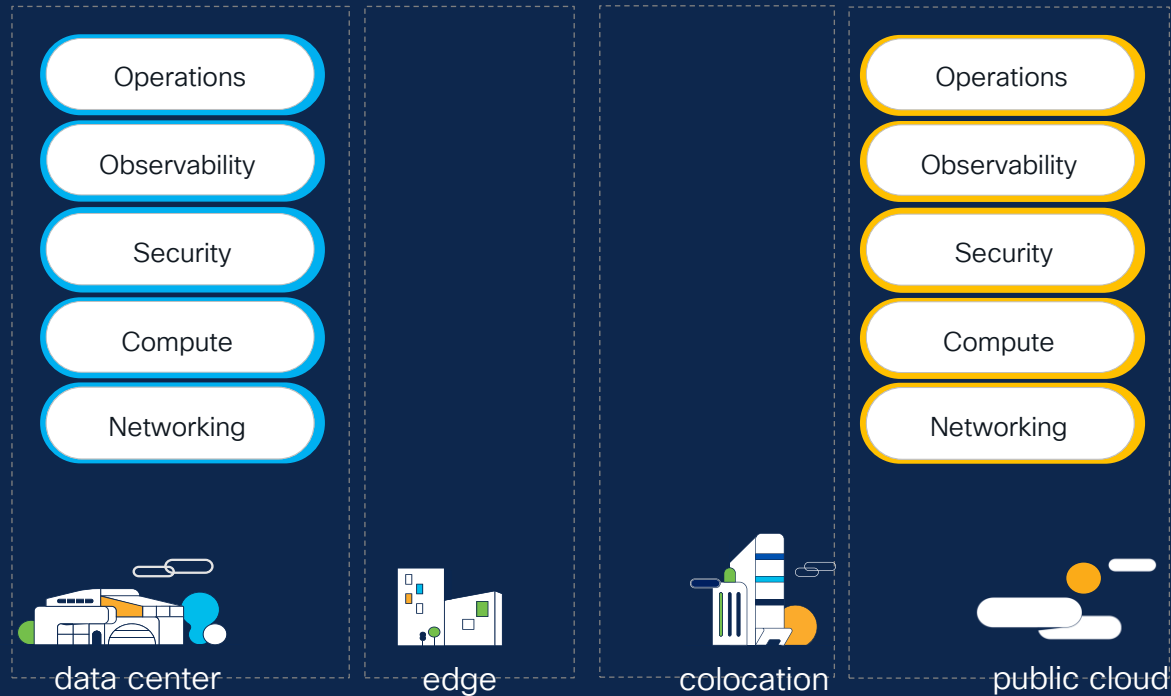
CI/CD pipelines to automate the building, testing, and deployment of software and infrastructure.



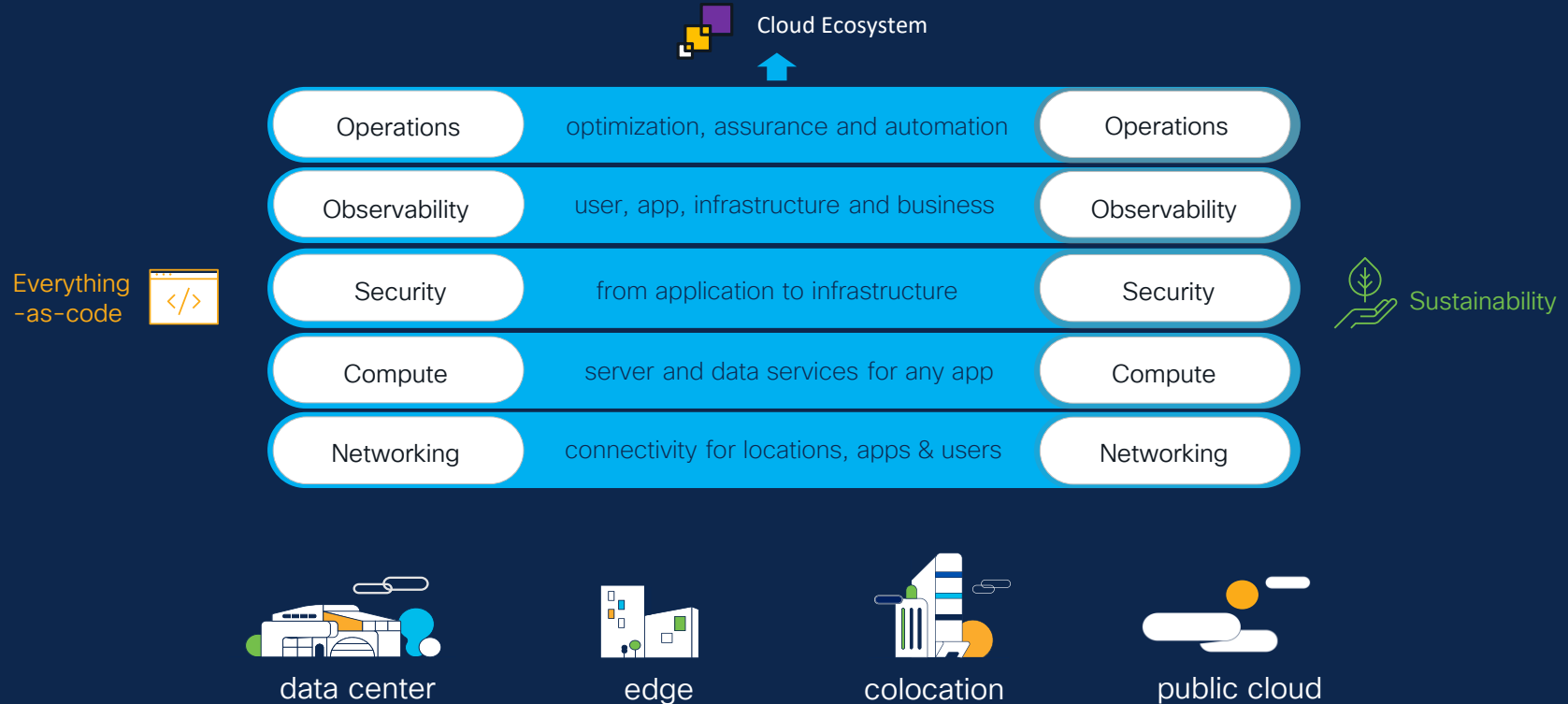
Platform Engineering

Creating and maintaining the underlying infrastructure and platforms that support the development and deployment of software applications.

From Silos...

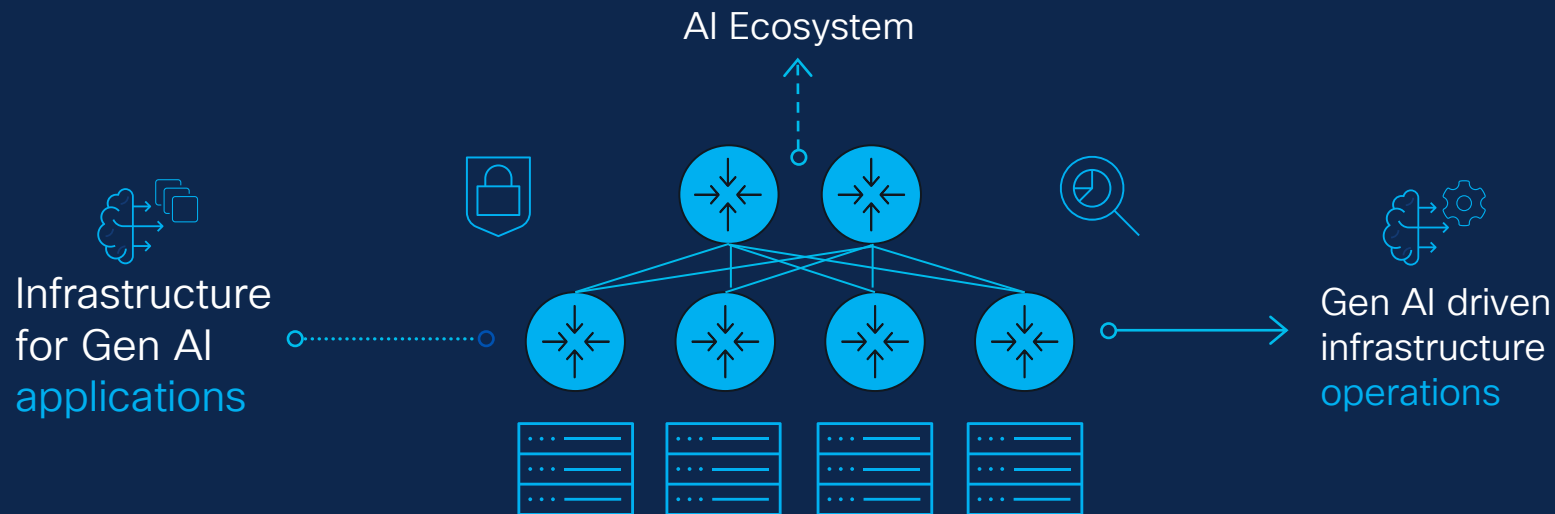


..to Hybrid Multicloud



Putting it all together

Gen AI in the Data Centre



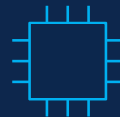
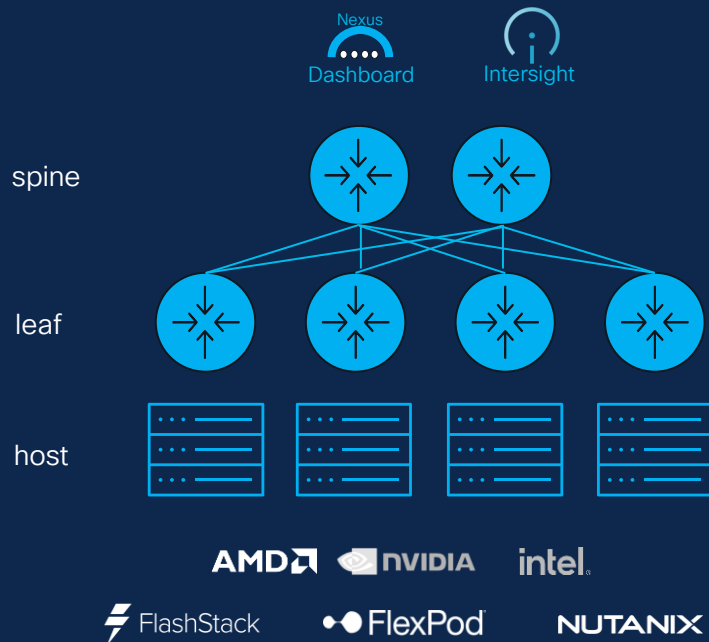
Flexible AI Infrastructure

Optimized for Performance and sustainability

Simple Operational Model

Putting it all together

GenAI in the Data Centre



Performance at scale

Non-blocking, low latency, lossless ethernet fabric built on Cisco silicon



Standardized compute and network platforms for streamlines operations and support



Accelerate time to value

while reducing risk with validated designs and converged Infrastructure



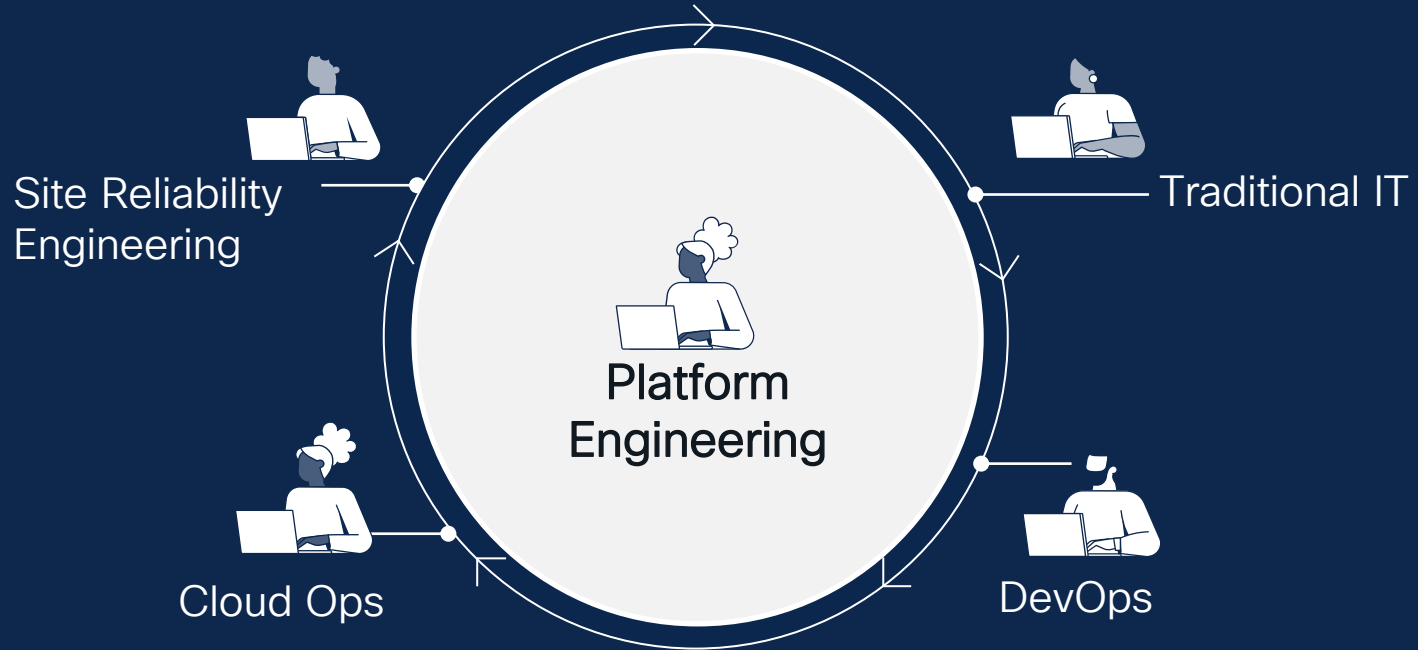
Align IT and sustainability targets

through infrastructure that's is sustainable by design

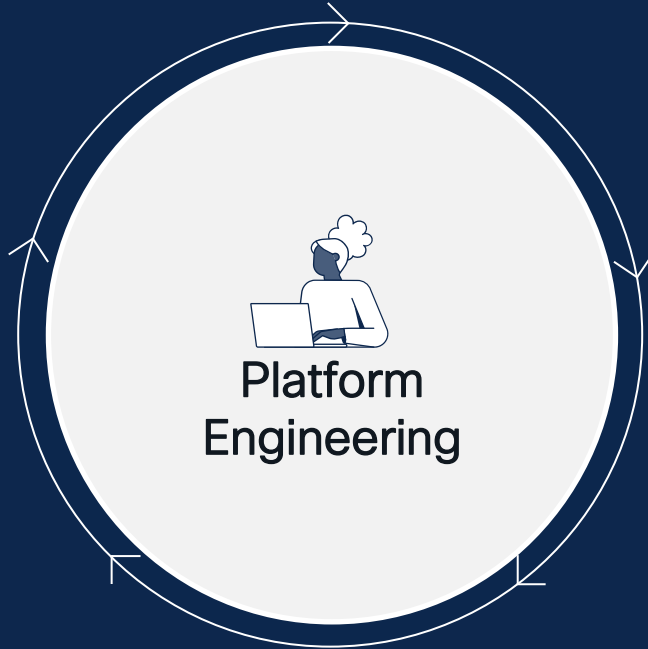
<https://www.cisco.com/c/en/us/td/docs/dcn/whitepapers/cvd-for-data-center-networking-blueprint-for-ai.html>

Models

Models

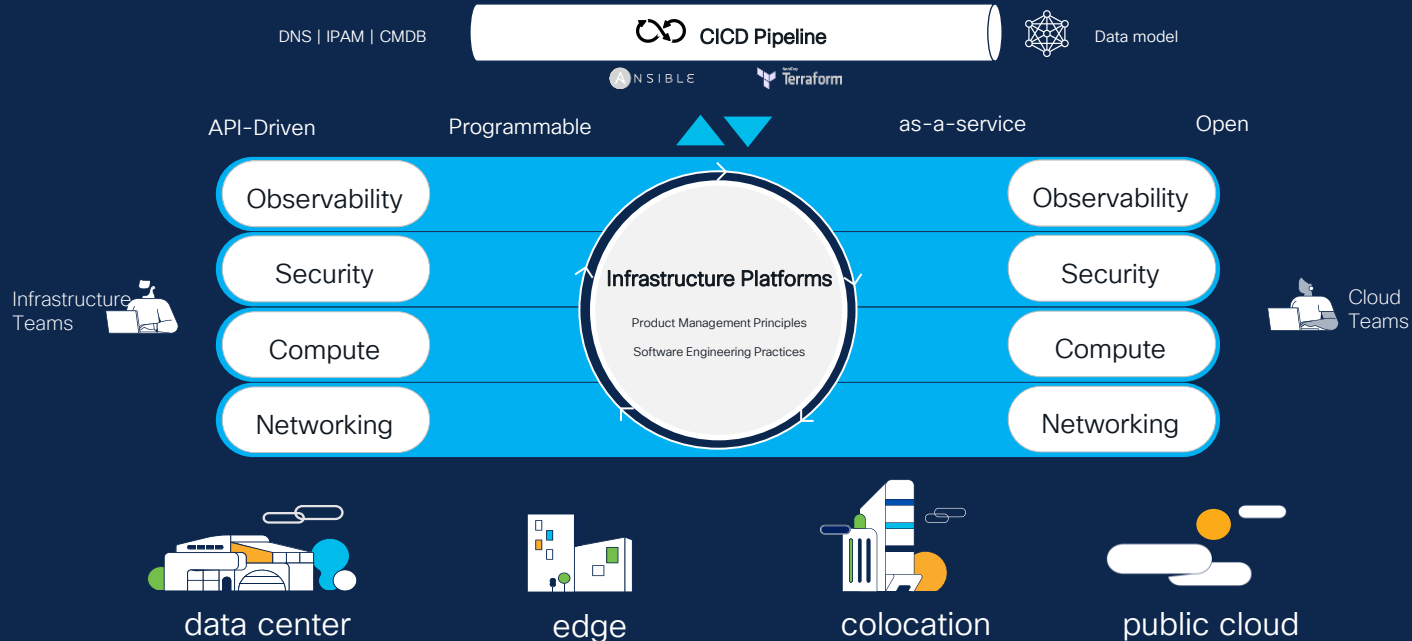


Platform Engineering Principles



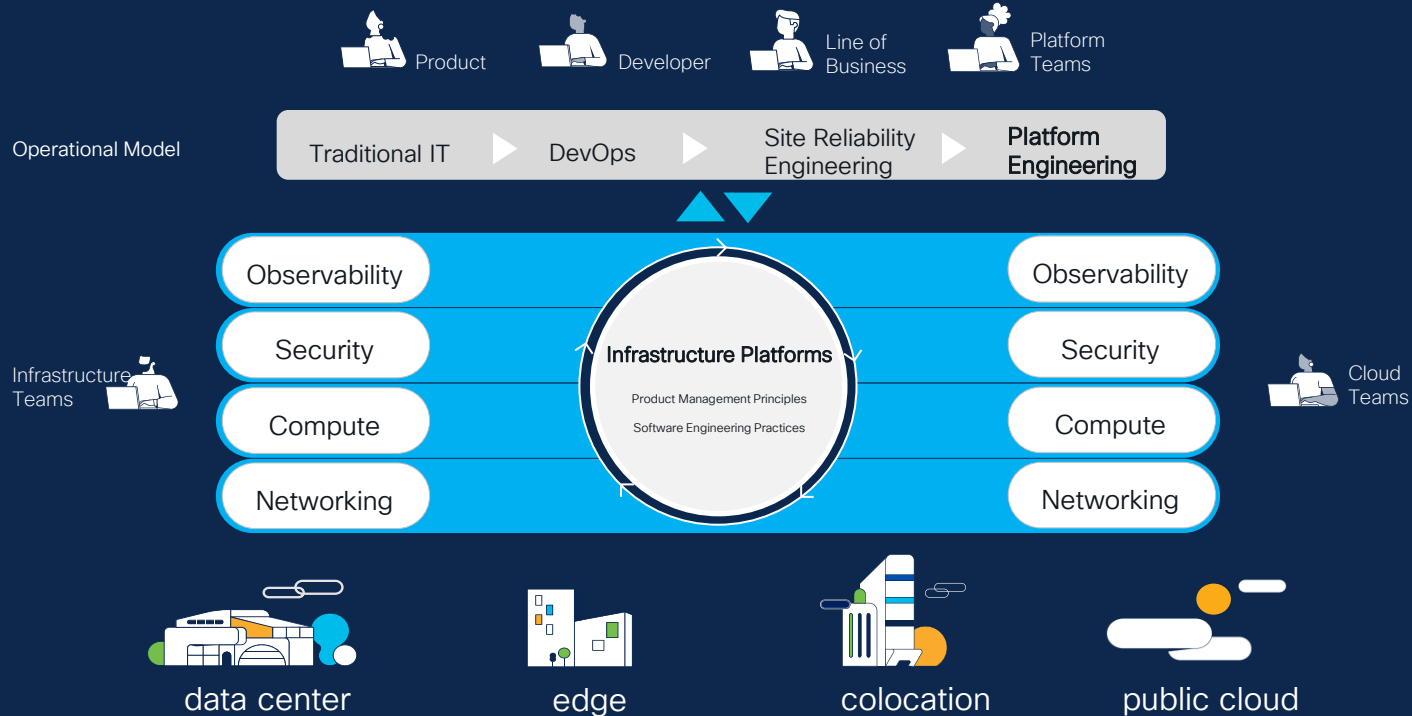
- Self Service
- Golden Path
- Product Managed
- Modular
- Explicit and Consistent APIs
- Secure by Design
- Observable

Infrastructure Platform Engineering



Source: Gartner: Predicts 2024: GenAI Will Transform IT Infrastructure and Operations.

Infrastructure Platform Engineering



Source: Gartner: Predicts 2024: GenAI Will Transform IT Infrastructure and Operations.

Recap

– Why your Data Center is so **IN** right now!

1. **TREND** is more Data Centers and more in them.
2. **DESIGN** for sustainable Hybrid Multicloud
3. **SUPER MODEL** is Infrastructure Platform Engineering



"Darlings, data centre is the new black!
A timeless, well-curated collection of servers and
networks, accessorized with the latest security
and observability technologies.

It's not just a trend; it's a classic investment
piece. A well-designed data centre never goes
out of style. So, strut your stuff down the cool
aisle. After all, in the world of tech, the data
centre is always timeless!"



ChatGPT



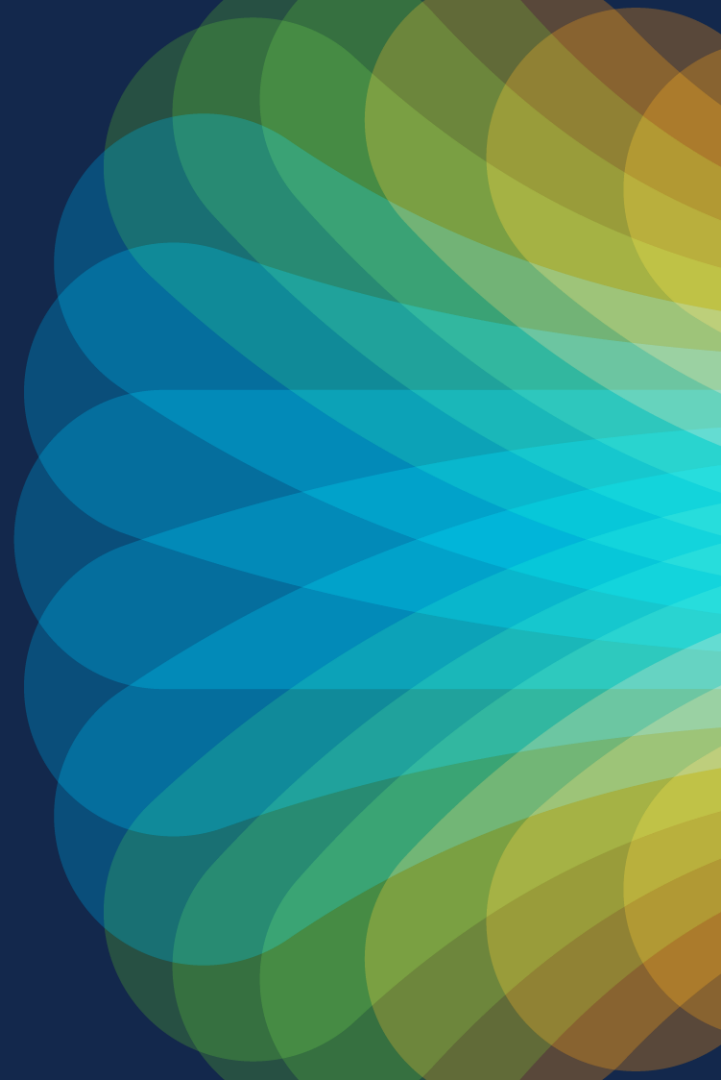
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The bridge to possible

Thank you

CISCO *Live!*



The background features a vibrant, multi-colored abstract design. On the left, there are horizontal, wavy bands of color in shades of red, orange, yellow, and green. On the right, a bright white light source emits a series of sharp, radiating lines in various colors, including blue, green, and yellow, creating a sunburst effect.

cisco *Live!*

Let's go