

Navigating Tomorrow: Emerging tech trends transforming the IT and business landscape

ITLGEN-2005

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Chief Technology Officer for Australia & New Zealand

cisco Live !
IT Leadership Program

An aerial, high-angle photograph of a busy city intersection at night. The image is characterized by long-exposure light trails from cars, creating streaks of white, red, and blue across the road surfaces. The intersection is marked with white crosswalks and lane lines. Streetlights illuminate the scene, casting a warm glow on the pavement and surrounding trees. The overall atmosphere is one of dynamic movement and urban energy.

The *PACE* of innovation has
never been FASTER

There are many **Trends** in *flight*...

AI Native Infra	Bare Metal as a Service	Agentic AI Operations	Data Fabric Architectures	Edge Compute	Security by Design	Network & Security Convergence	Cross Cloud Orchestration	Smart Programmable Buildings
AI Threat Landscape	Autonomous Operations	Hybrid Mesh Firewalls	Quantum Ready Infra	Hyperscale Data Centers	AI Augmented Defense	Embedded AI Engines	Green IT	Data Mesh Architectures
Fault Management Power	AI Pipeline Orchestration	Universal Zero Trust	Workplace Reboot	Hyper Automation	Quantum Computing	Low Code No Code	Sovereign AI	Industrial Robotics
Quantum Proof Security	Liquid Cooling	Digital Twin & Simulations	Gen-AI Copilots	Infrastructure as Code	Auto Tuning Workloads	Deep Fake Defense	Cloud Repatriation	Edge Observability
Private Interconnect Fabrics	Sustainable Hardware	Intercloud Portability	Platform Engineering	Modular Data Centers	Extended Reality for Workforce	Prompt Engineering	GPUaaS & Neo Clouds	5G Private Networks

Edge First AI Native Infrastructure



When *starting* your AI Journey
The question is...
**Where to host your
Models & Apps**



Edge AI Market
\$270B
By 2032

A Few Reasons
Drivers behind this ***Movement***



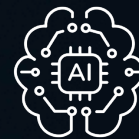
Data Sovereignty, Privacy and Security



Ethically hosting sensitive data
in public clouds



Privacy standards, GDPR,
Sector Specific Rules



Controlling proprietary model
weights/embeddings



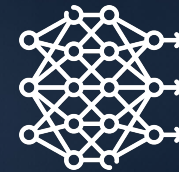
Performance, Latency and Edge Requirements



Processing data closer to the source



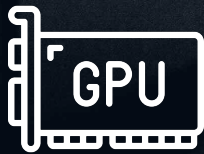
AI apps have deterministic latency requirements



Avoiding network bottlenecks transferring data



Cost Control, Predictability and Lock In



GPU cloud costs are skyrocketing



Persistent AI Workloads cost more to run



Cloud data egress fees are substantial for big data sets

AI Infra Developments



Industry
Partnerships



Integrated Tech
Stacks



Consumption
Models

Quantum Proof Security

Google's Quantum Supremacy *Experiment* - 2019

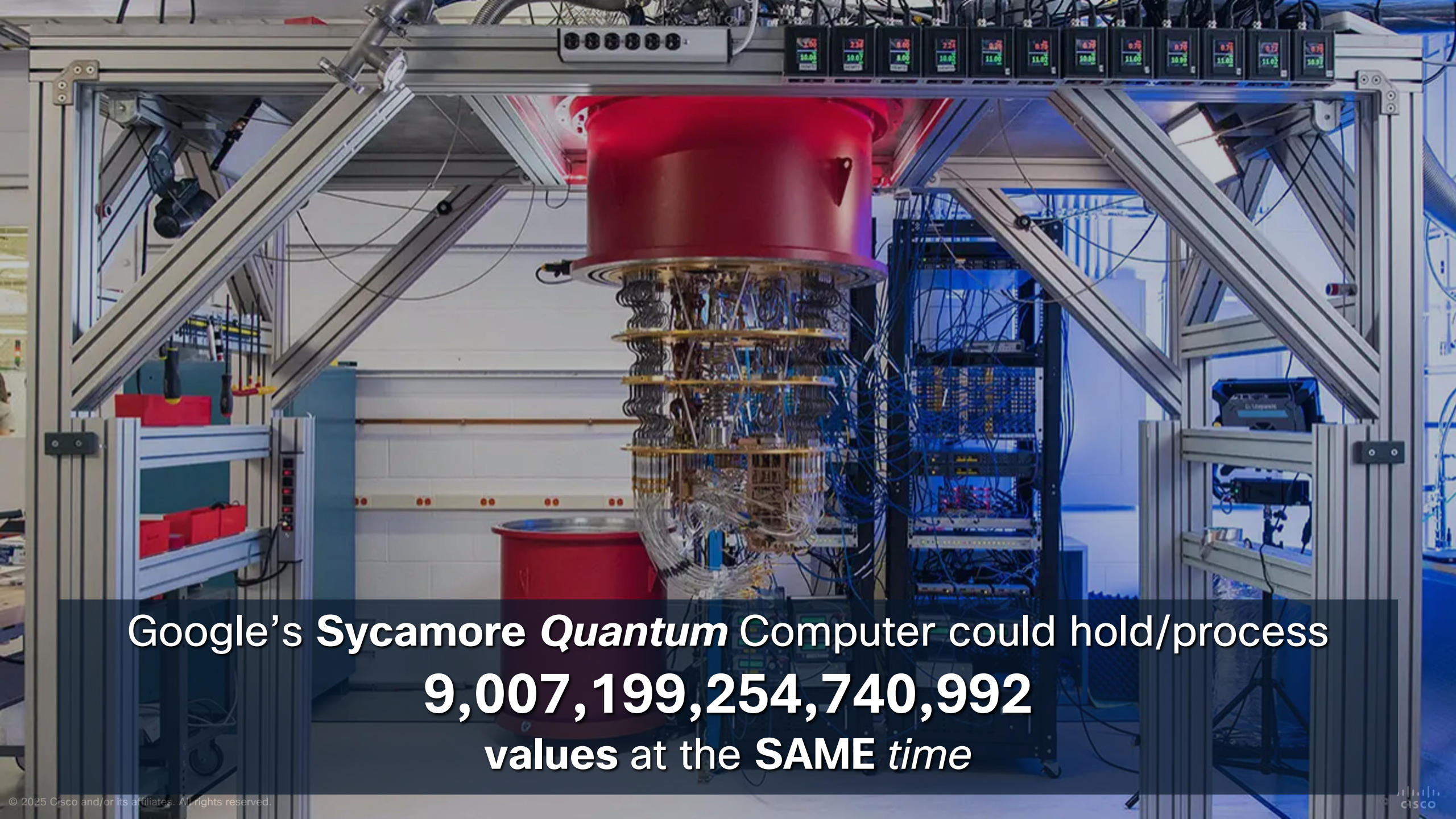


✕ Qubit

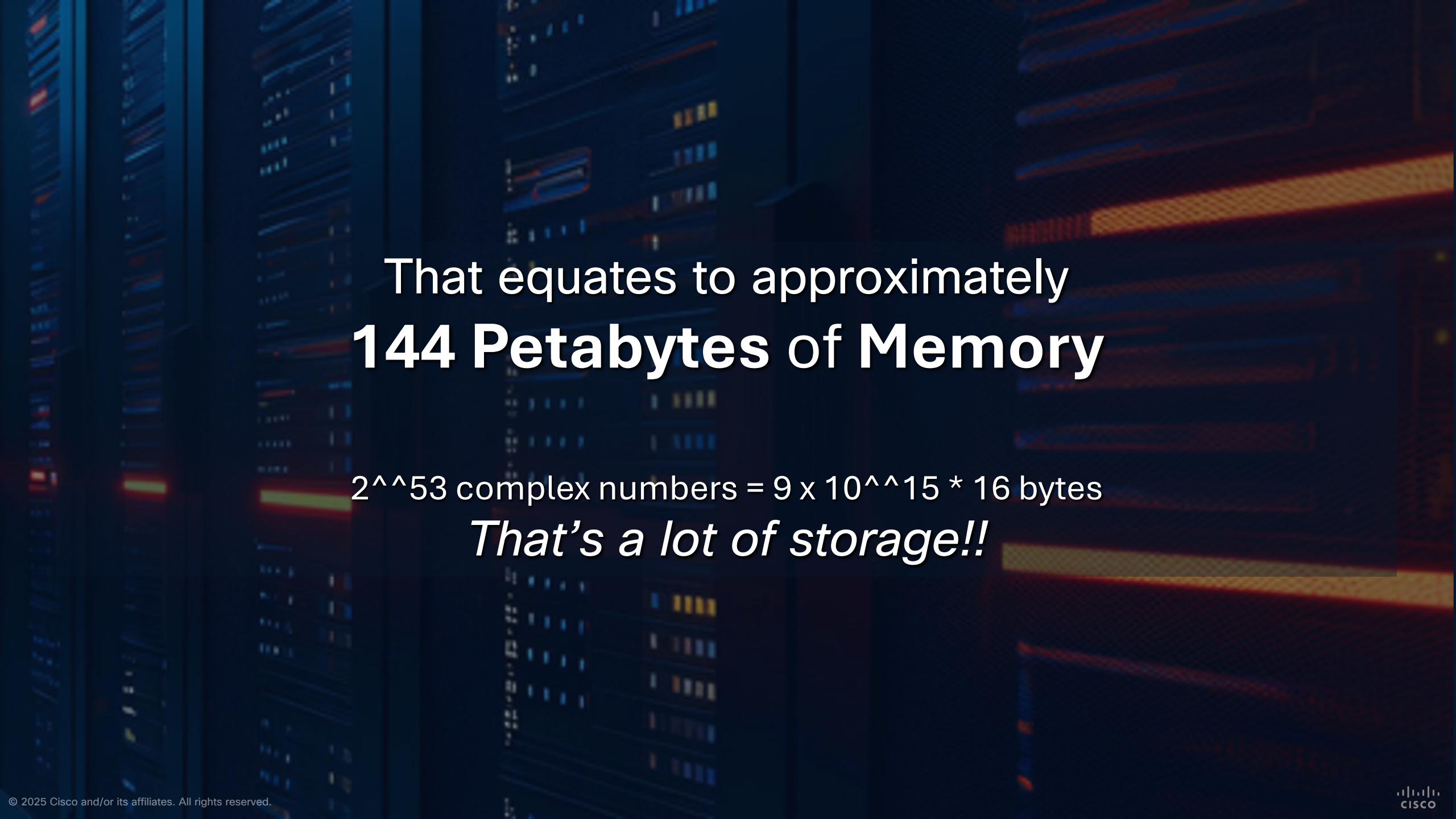
■ Coupler

Sycamore Processor

*Completed a task in
200 seconds that Google
claimed would take
10,000 years to complete on
a then “current” state-of-
the-art supercomputer*

A photograph of Google's Sycamore Quantum Computer. The device is a complex, cylindrical structure with a red top and bottom section, and a central section filled with intricate wiring and components. It is housed within a large, industrial-looking metal frame. In the background, there are server racks and various electronic components. The overall scene is a high-tech laboratory environment.

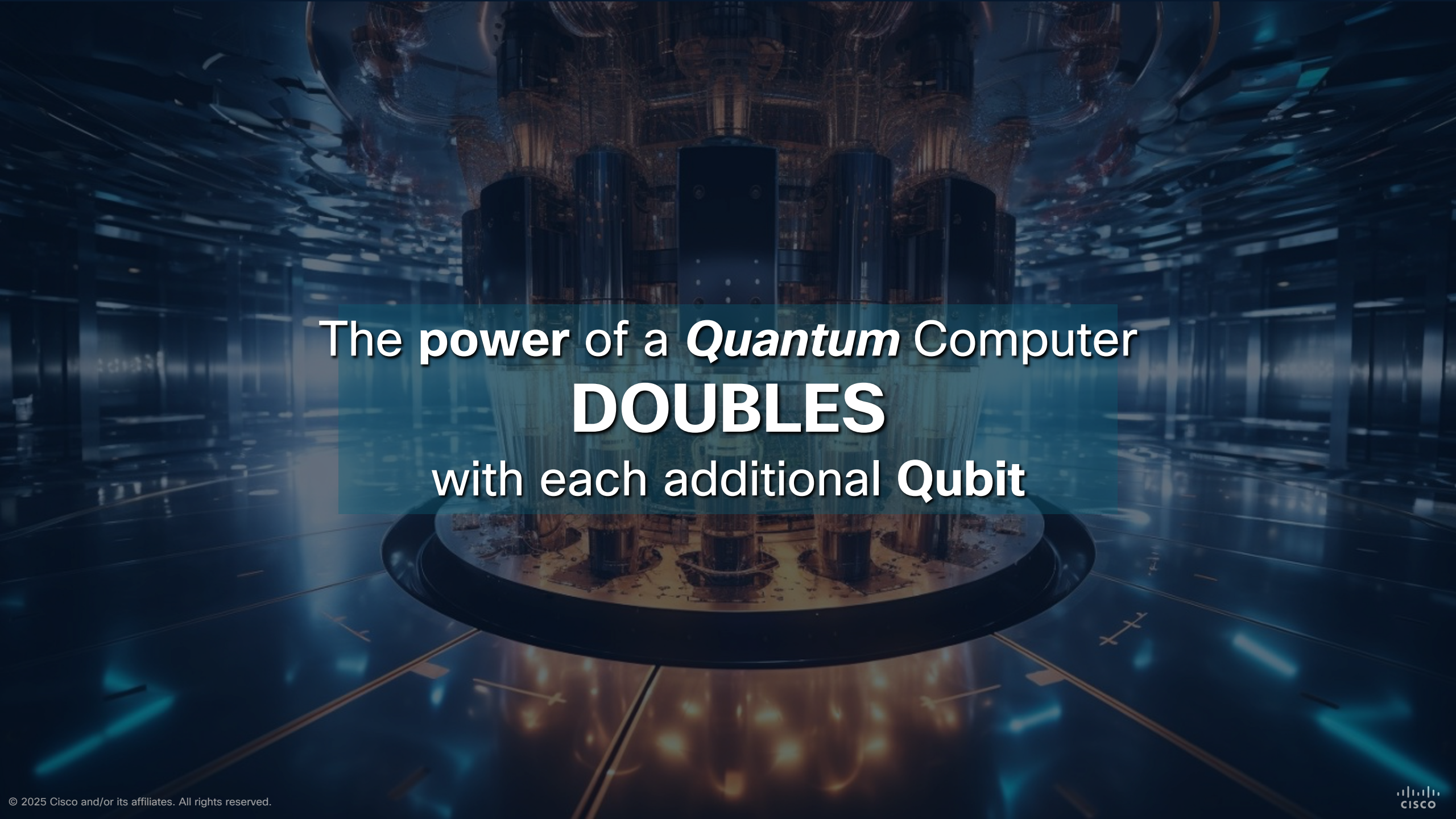
Google's *Sycamore Quantum* Computer could hold/process
9,007,199,254,740,992
values at the **SAME** *time*



That equates to approximately
144 Petabytes of Memory

2^{53} complex numbers = $9 \times 10^{15} \times 16$ bytes

That's a lot of storage!!



The power of a *Quantum* Computer
DOUBLES
with each additional Qubit

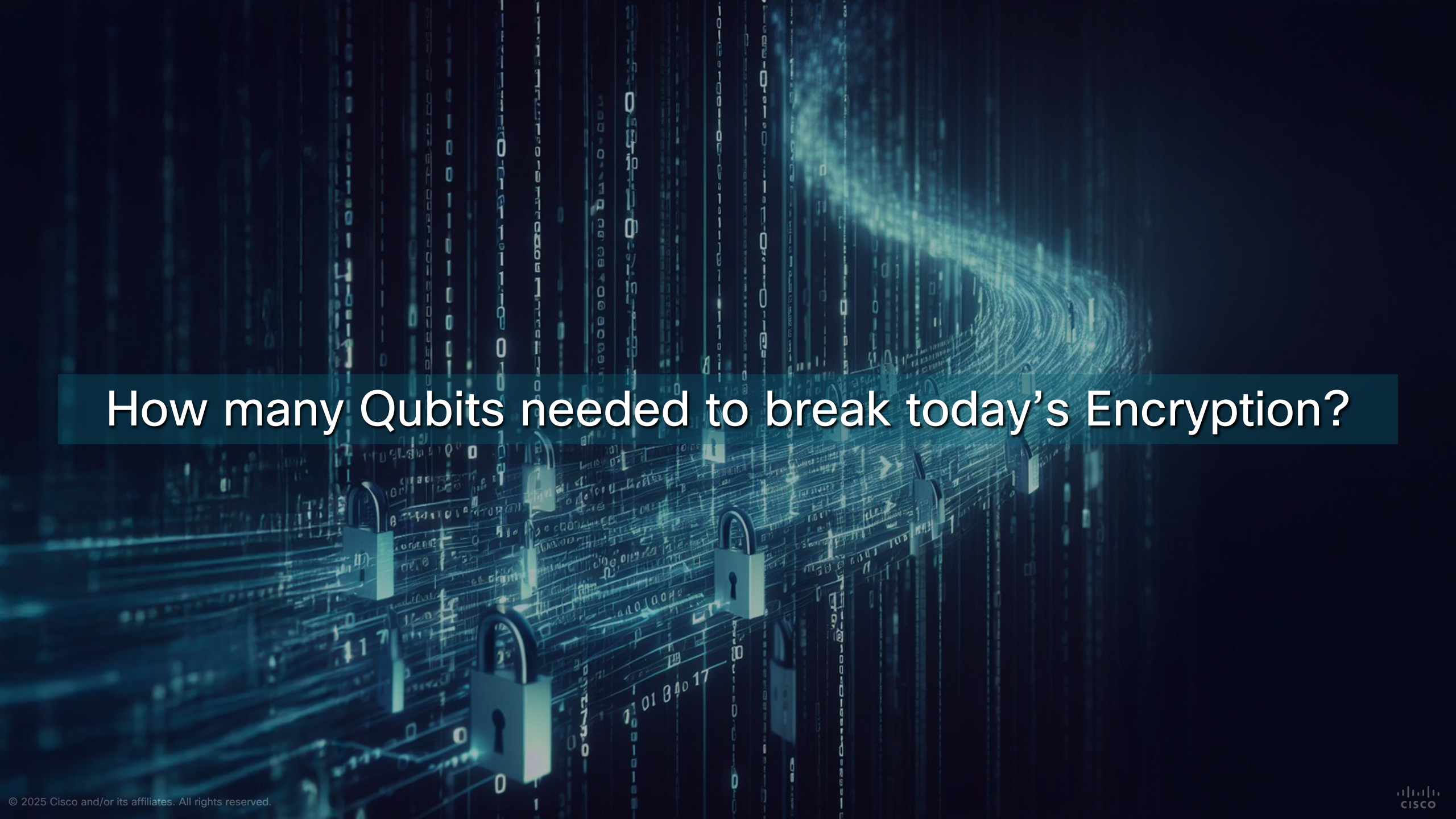
Caltech Team Sets Record with 6,100-Qubit Array

September 24, 2025



The Quantum Threat

Cracking today's encrypted data in real time



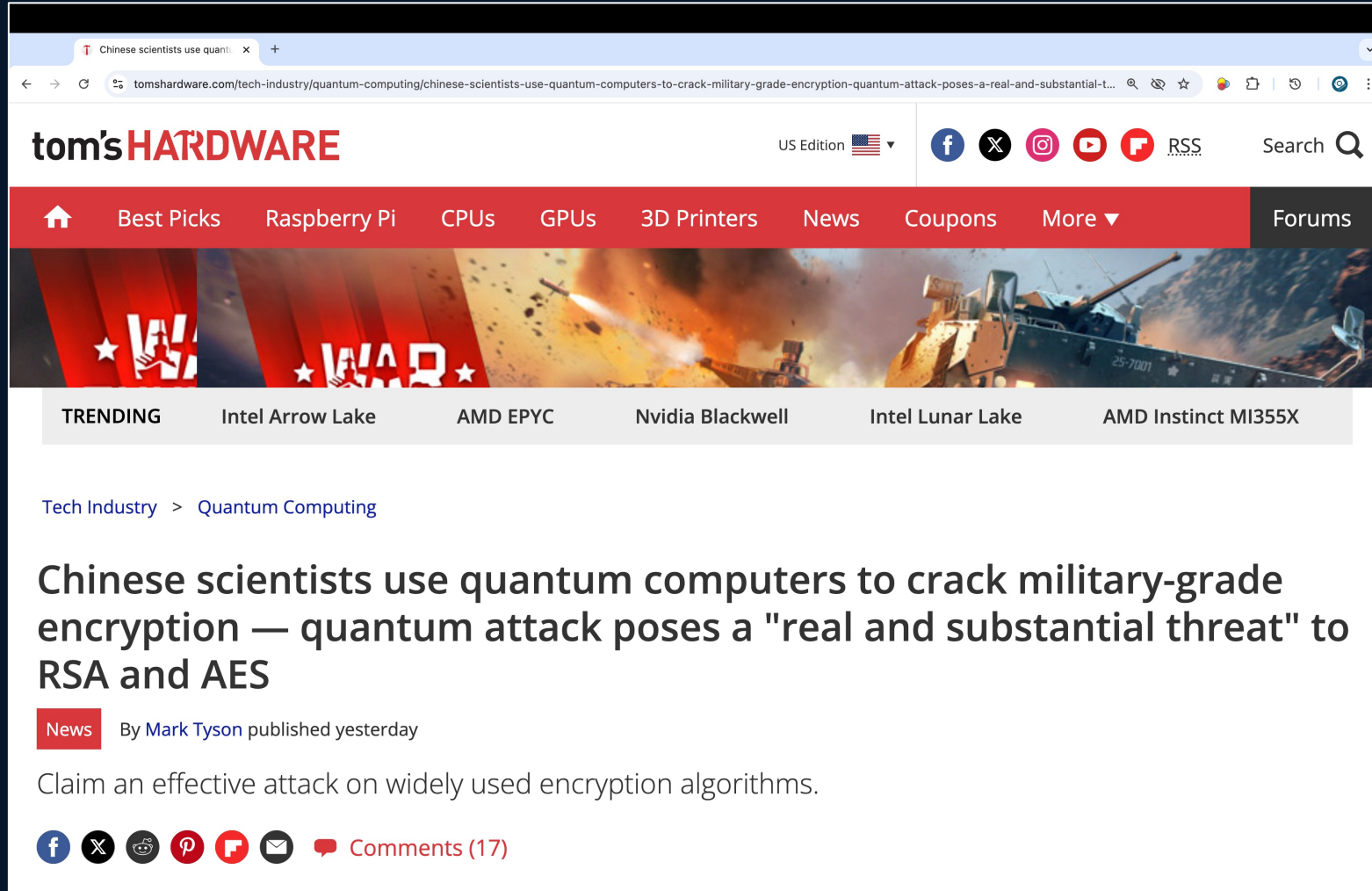
How many Qubits needed to break today's Encryption?



RSA-2048 ~40,000 Qubits*
AES-256 ~66,000 Qubits*

* Using 10 Physical Qubits to 1 Logically Corrected Qubit reference point

The Quantum threat is *Real*



The screenshot shows a web browser displaying a Tom's Hardware article. The browser's address bar shows the URL: tomshardware.com/tech-industry/quantum-computing/chinese-scientists-use-quantum-computers-to-crack-military-grade-encryption-quantum-attack-poses-a-real-and-substantial-t... The page features the Tom's Hardware logo, a navigation bar with links like 'Best Picks', 'Raspberry Pi', 'CPUs', 'GPUs', '3D Printers', 'News', 'Coupons', 'More', and 'Forums'. A large banner image depicts a military tank in a combat environment. Below the banner, a 'TRENDING' section lists various processors. The main article title is 'Chinese scientists use quantum computers to crack military-grade encryption — quantum attack poses a "real and substantial threat" to RSA and AES', published by Mark Tyson. The article snippet reads: 'Claim an effective attack on widely used encryption algorithms.' Social media sharing icons and a 'Comments (17)' link are visible at the bottom of the article preview.

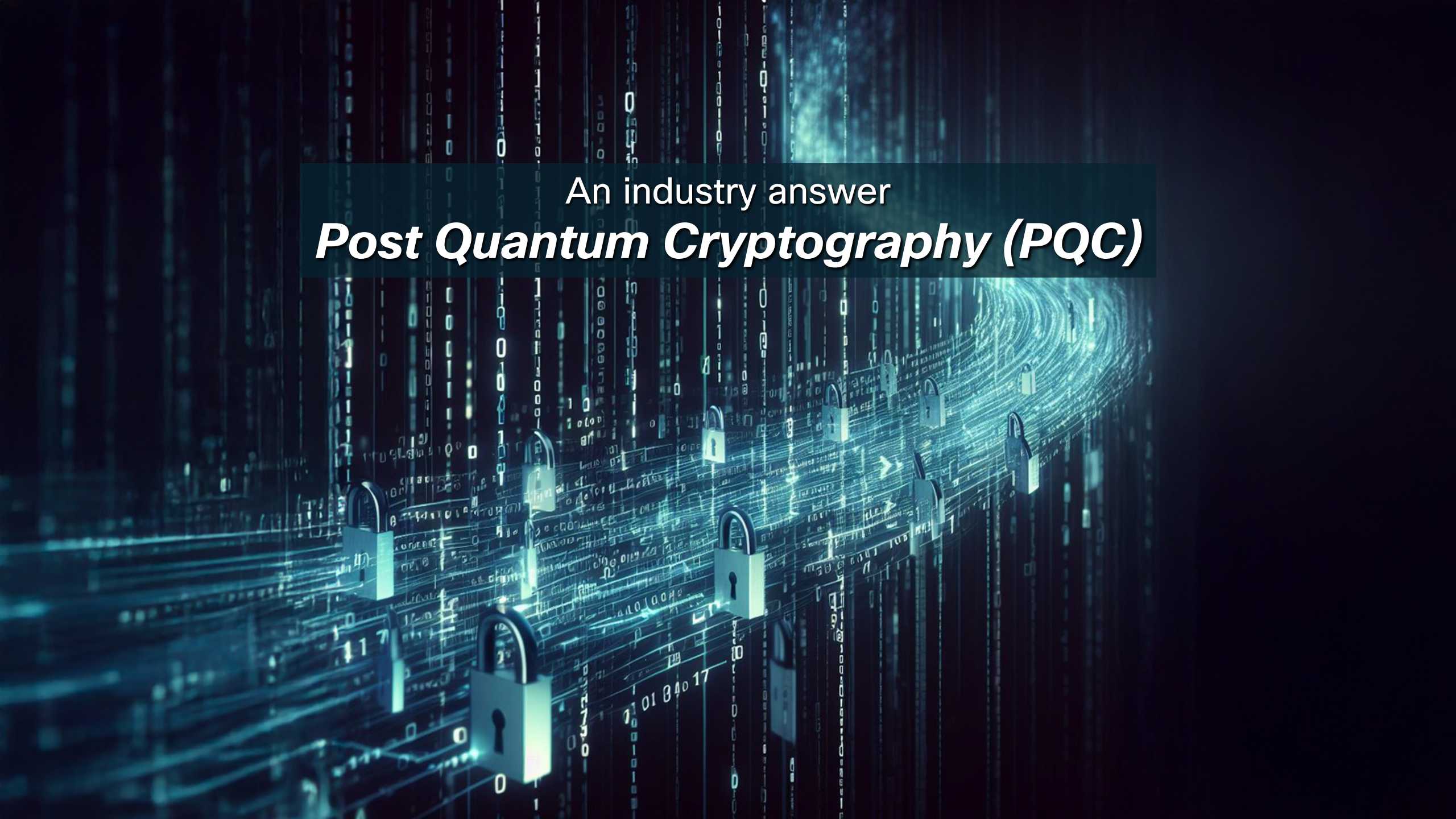
Chinese scientists use quantum computers to crack military-grade encryption — quantum attack poses a "real and substantial threat" to RSA and AES

News By Mark Tyson published yesterday

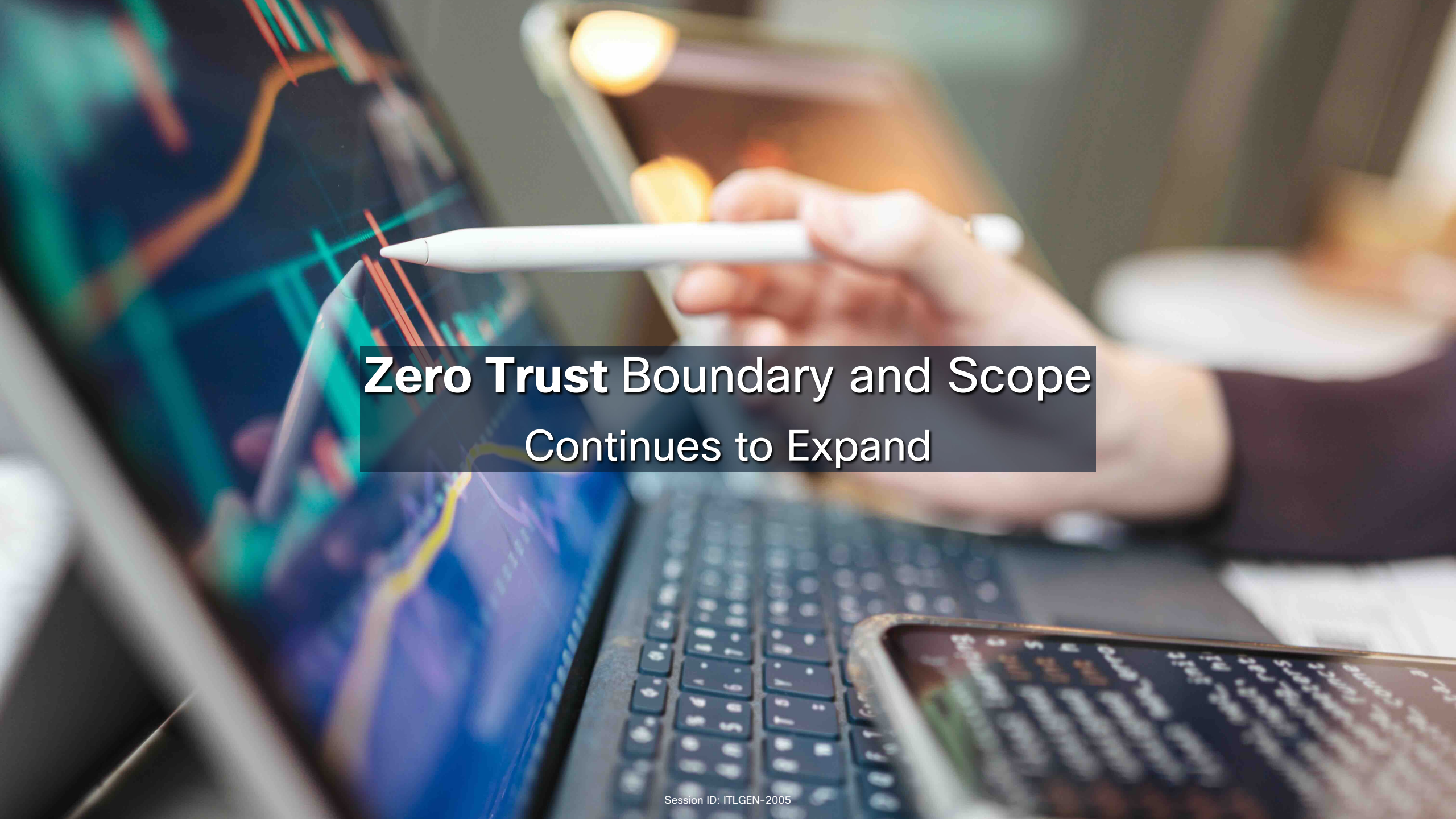
Claim an effective attack on widely used encryption algorithms.

Comments (17)

An industry answer
Post Quantum Cryptography (PQC)



Universal Zero Trust



Zero Trust Boundary and Scope Continues to Expand



Convergence of Network and Security

Proactive Threat Detection – Anomaly Identification – Automated Remediation

Network *Fabrics*



Simplified Stack



Wired + Wireless



Segmentation

Its not just about the Tech

Thinking laterally to build a formidable UZTNA architecture



A photograph of three IT professionals in a server room. A woman with glasses and a blue shirt stands on the left, holding a clipboard and gesturing towards a man sitting at a desk. The man is wearing headphones and looking at a computer monitor. Another man with a beard and a grey hoodie stands on the right, looking at the same monitor. The background shows server racks and a whiteboard with sticky notes.

Universal Zero Trust Network Access

Expanding the security footprint for all Users, Devices and Things

A close-up, low-angle shot of a person's hands interacting with technology in a dimly lit office. The person is holding a silver smartphone in their right hand, with the screen glowing. Their left hand is positioned over a laptop keyboard. The laptop screen is visible in the background, also glowing. The overall atmosphere is professional and focused, with soft lighting highlighting the hands and the devices.

Driving Frictionless Secure Access

Least Privileged Policies – Compliance Travels with Users Across Networks



Identity at the core of Trust

AI based Identity Intelligence – Unified Policy Framework – MFA – Continued Monitoring

Infrastructure as Code goes *Mainstream*

Introduction of Programmatic Controls

w/Software Defined Networking





DevOps

Developer Operations

*The use of programmatic
controls in the infrastructure to
automate network
infrastructure*

A photograph of two women in a server room. The woman on the right, wearing a blue sweater and jeans, holds a laptop and points at the screen. The woman on the left, wearing a beige dress, looks at the laptop. They are standing in a long aisle of server racks. The racks on the right are open, showing server units. The ceiling has bright lights.

Modern Infrastructure

Provision, Version and Manage via Code



Widespread use of IAC tools
Pulumi, Terraform & Cloudformation



Infra tied to AI GIT Repositories



Fully Automated Processes
Blue/Green, DR, Rollbacks, etc.

Tomorrows IT Engineers

*Prompt to Code – AI Infrastructure Mgmt. – Use Git Copilots
AI Module Generation – AI Automated Remediation*



The Emerging AI Threat Landscape

Cyber Readiness Index

Customer Sentiment and Findings



2025 Cisco Cybersecurity Readiness Index

Australia





86%

have experienced an **AI related *Cyber Incident*** in the last **12 months**

A blurred background image of a person in a plaid shirt using a laptop. The person's hands are visible on the keyboard and mouse. A semi-transparent dark blue banner is at the bottom, containing white text.

The Challenge of Shadow AI

Detect Unauthorized AI Apps – Prevent Data Leaks – Ensure Compliance

To defend against
Machine Scale
Attacks you need
Machine Scale
Defense





AI as a Defense Tool

*AI Baselineing – Policy Validation – Security LLMs
AI Security Insights – Policy Adjustment Automation*

Foundation-Sec-8B

Open-Source Security LLM – Download from Hugging Face

SOC Acceleration

*Automated Triage, Case Note Generation,
Evidence Collection*

Proactive Threat Defense

*Simulate attacks, prioritize vulnerabilities,
model attack behavior*

SOC Enablement

*Validate configs, assess compliance
evidence, improve security posture*

There is another angle to **consider...**
Securing AI

The AI Prompt **Conundrum**

Securing AI prompts is difficult



What can I help you with?



Ask Anything



Securing AI



AI Asset Visibility



Model Validation



AI Model Protection



Prompt Security



Ethical Framework

Smart Programmable Buildings

Making the office a
Magnet for Returning Workers

Ethernet Switching



7% Global CAGR



OT Convergence



**Power over
Ethernet**

It Starts With
Power over Ethernet

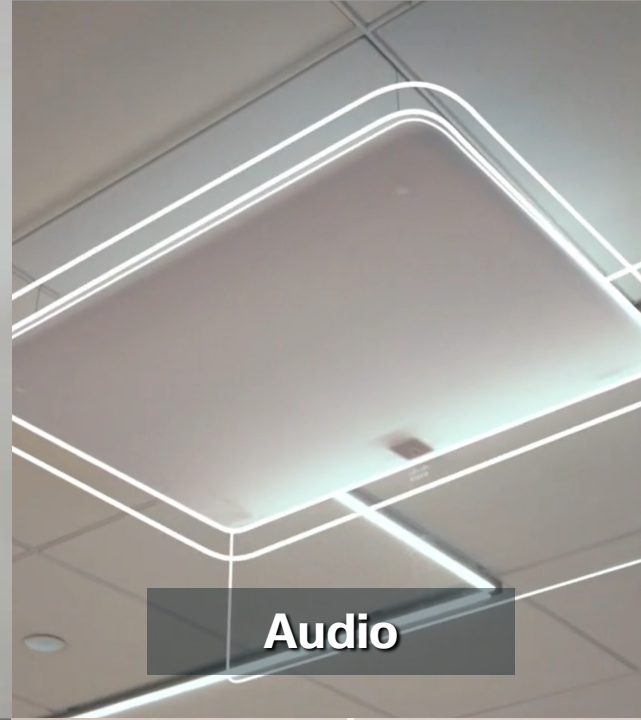




Wi-Fi



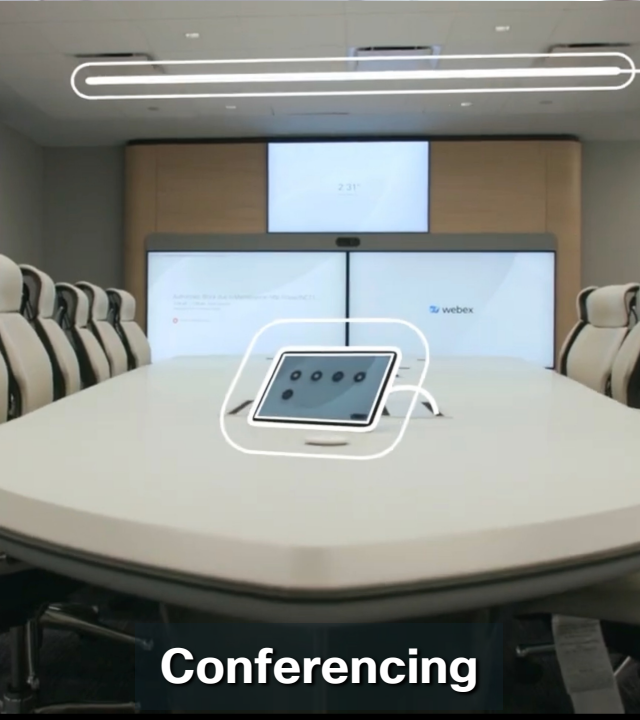
Sensors



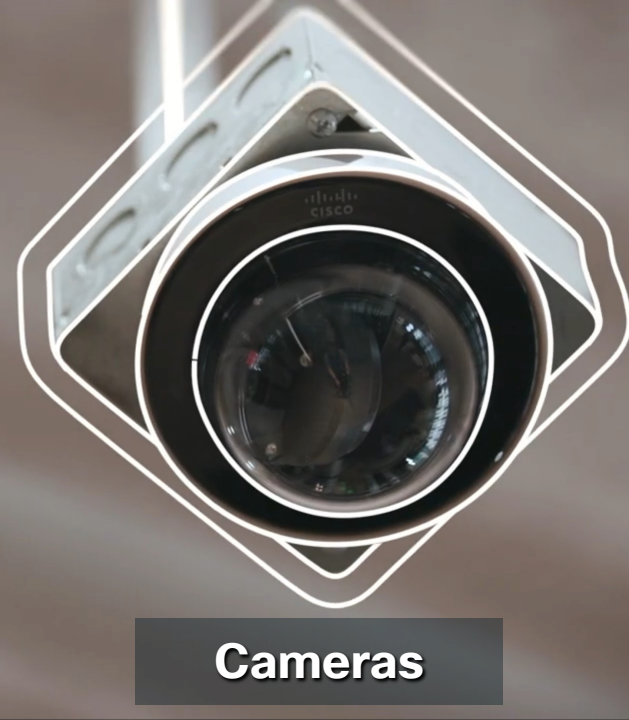
Audio



Lighting



Conferencing



Cameras



Thermostat



Window Shades

The Pace of the Evolution of WIFI



Wi-Fi 7



4K QAM



MLO



Enhanced Security



320MHz in 6GHz



Multi RU

A woman with dark hair in a bun, wearing a blue denim shirt and black pants, is walking from left to right in a hallway. She is holding a tablet computer in her hands. The hallway has white lockers on the wall and a grey carpet with a geometric pattern.

Location *Analytics*

Indoor Navigation

Space Utilization

Behavior Analytics

Asset Tracking

Environmental Monitoring

Asset Location

Location Troubleshooting

Rogue Device Detection

Smart Desking

The **Workplace** is being *reimagined* to support *new ways* to collaborate



Distance Zero



Distance Zero Technology *Innovations*



**Head
Detection**



**Noise
Removal**



**People
Frames**



**Meeting
Zones**



**Cinematic
Meetings**

Multi-Cloud/Intercloud Portability

Today, **Multi-Cloud** is a given

What's evolving is
***How well those clouds
talk to one another***



A photograph of two men in a modern office setting. They are sitting at a desk with multiple computer monitors. The man on the right is wearing a dark cardigan and glasses, resting his chin on his hand. The man on the left is wearing a light-colored t-shirt. They are both looking at the screens. The desk is cluttered with various items like a water bottle, papers, and cables. In the background, another person is visible working at a desk.

Direct Interconnect between Major Cloud Providers

***Enabling seamless and secure
cross cloud data flow***

A person's hands are holding a tablet in a server room. The tablet screen shows a complex data table with multiple columns and rows of numbers and text. The background is a dark server rack with some yellow cables visible. The text is overlaid on a dark rectangular box in the bottom left corner.

Growth in Cross Cloud AI Orchestration Tools

*Simplify management, security &
administration of cross cloud apps and data*

A man with a beard and a woman with glasses are in a modern office. The man is standing and leaning over the woman, who is sitting at a desk and looking at a laptop. They are both focused on the screen. The office has large windows, modern furniture, and a clean, professional atmosphere.

Unified Identity, Access & Policy Management

*Simplified, AI Assisted Security and
Compliance across disparate Cloud*

Intercloud Future

*Dynamically shift workloads based on
cost, availability and performance*

IT Team Skills

*Fluent in Cloud Abstraction Layers and
Portable Infrastructure Design*

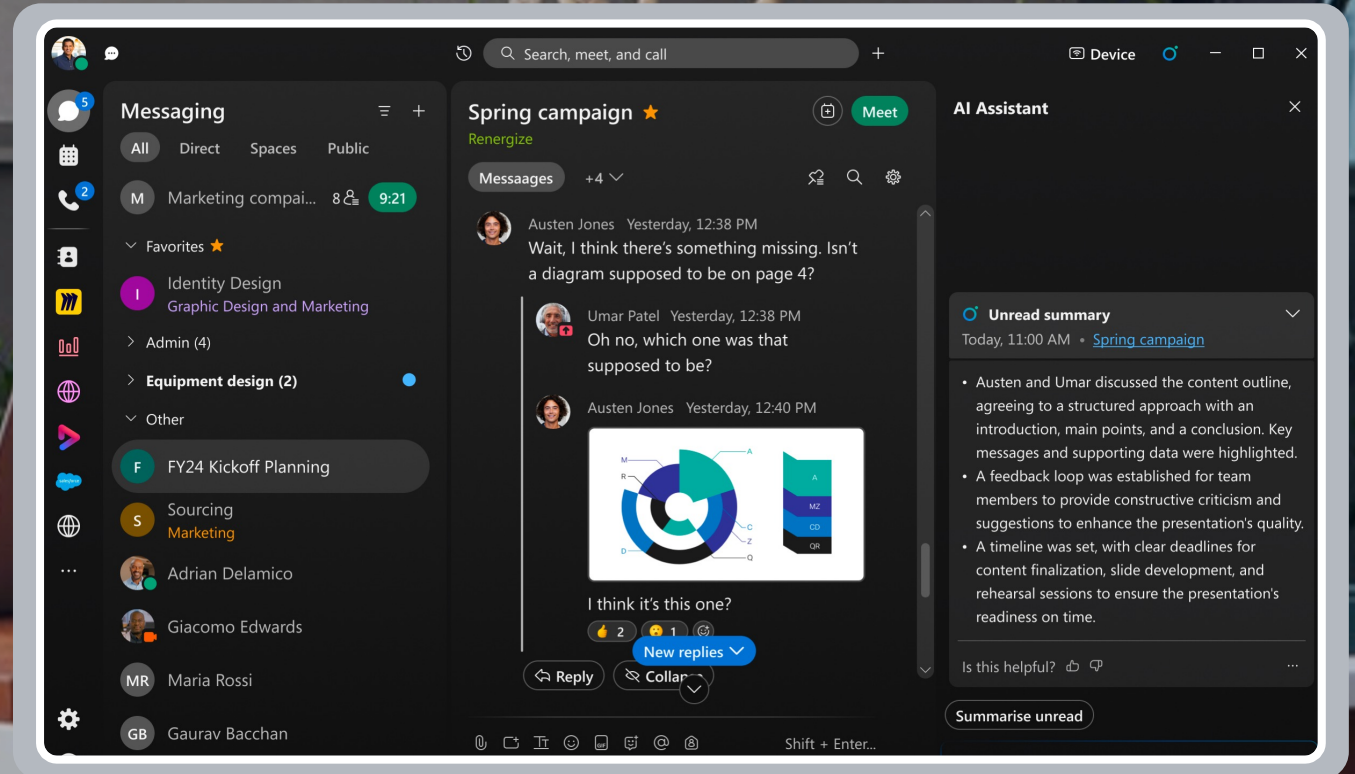


Agentic AI Operations

The Operator Paradigm
is *shifting* **FAST**



End User AI assistants



Writes, Summarizes, Translates
Finds Answers

AI Assistants for *IT Operators*



Day 0, 1, 2 Functions



Documentation



How Do I?

AI Agents for Customers



Rapid Engagement



Understand Context

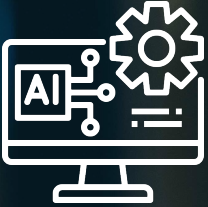


Personal Responses



Conversational

AI Generated *UI's*



LLM Foundation



Dynamic UI



**Widgets Tied to
Workflow**

Ethical AI *Framework*



Transparency



Fairness



Accountability



Privacy

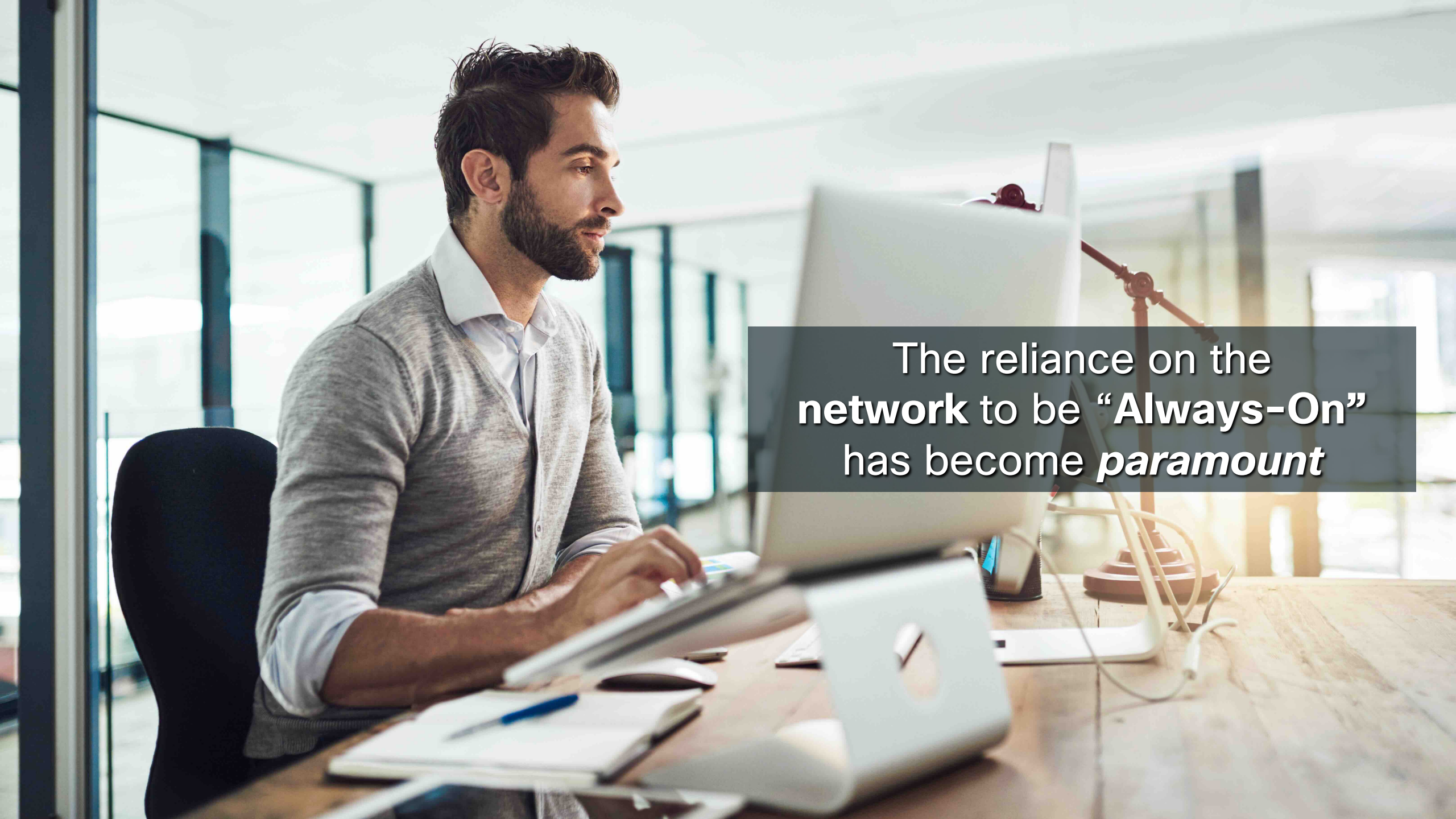


Security



Reliability

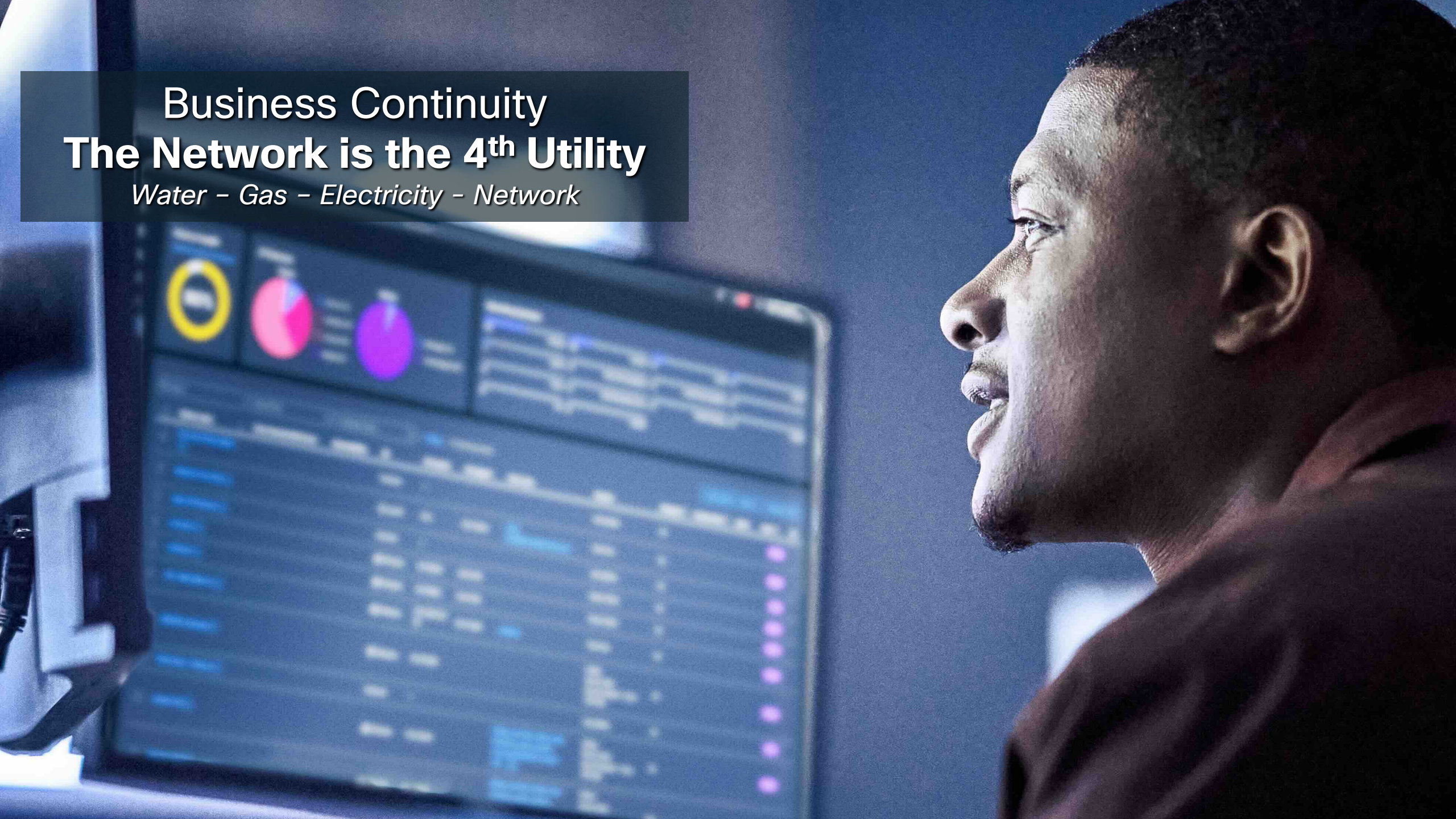
Data Fabrics and Data Mesh Architectures

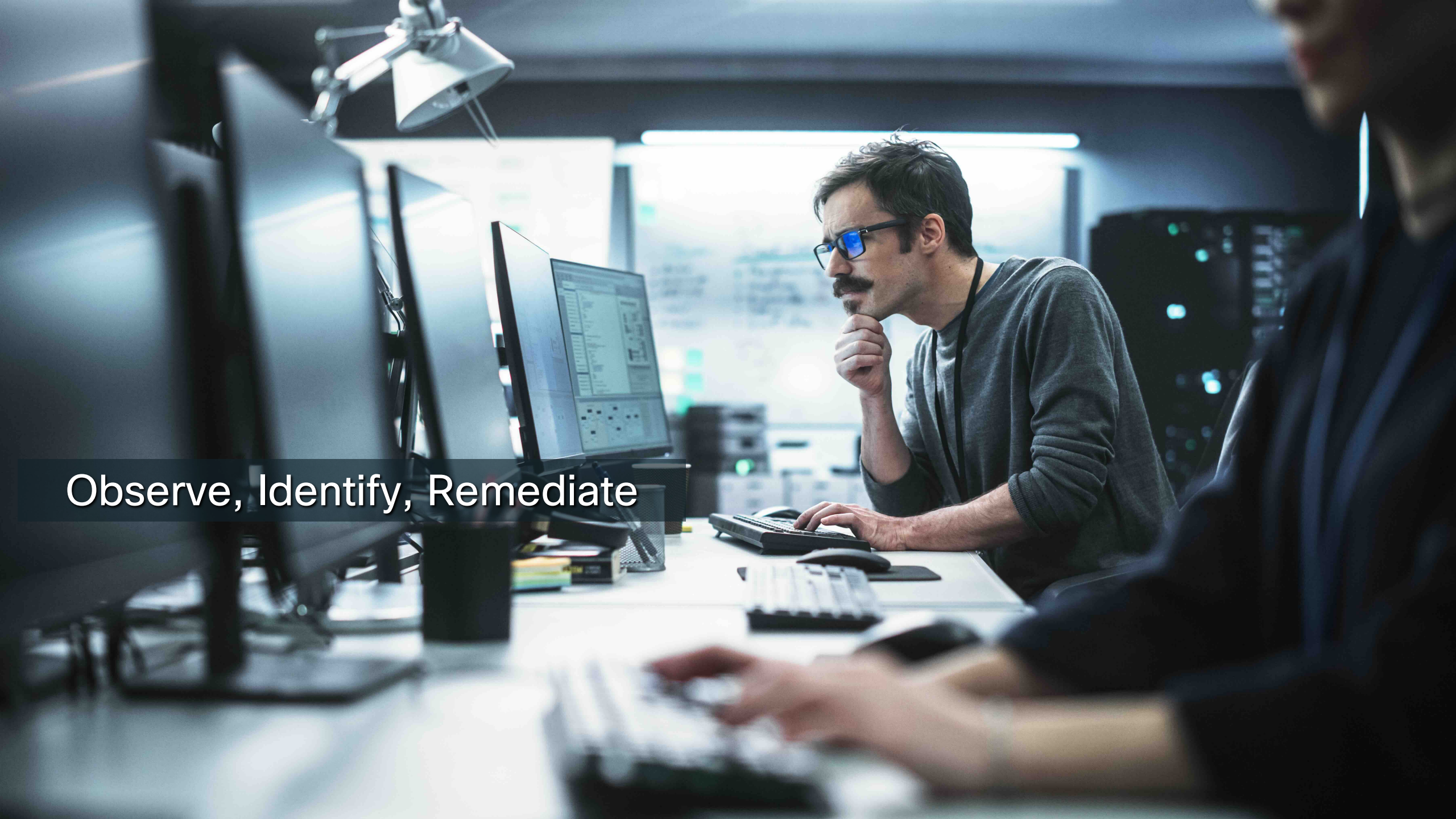
A man with a beard and dark hair, wearing a light blue shirt and a grey cardigan, is sitting at a wooden desk in a modern office. He is looking at a large computer monitor and typing on a keyboard. The office has large windows in the background, and the lighting is bright and natural. A desk lamp is visible on the right side of the desk.

The reliance on the
network to be “**Always-On**”
has become *paramount*

Business Continuity **The Network is the 4th Utility**

Water – Gas – Electricity – Network



A man with a mustache and glasses, wearing a grey long-sleeved shirt, is sitting at a desk in a server room. He is looking at several computer monitors. The monitors display various data and charts. A desk lamp is positioned over the desk. In the background, there are server racks with glowing lights. Another person is partially visible in the foreground, out of focus.

Observe, Identify, Remediate

You needs **DATA**
and a LOT OF DATA at that



The resulting problem is
COST
the more you Ingest,
the more it *Costs*



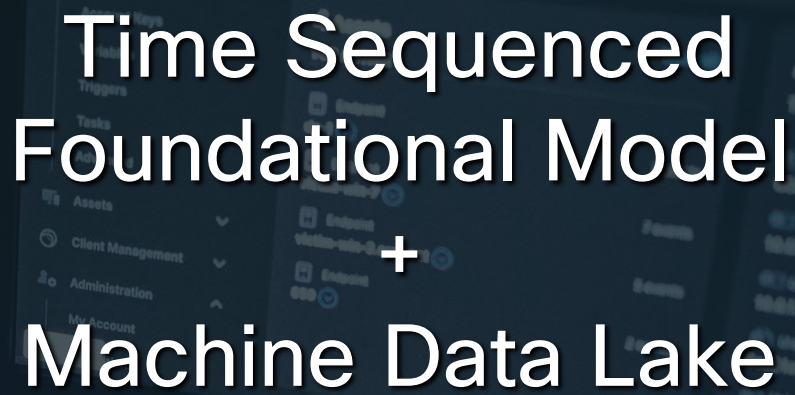
One possible answer
A Data Fabric



Federated Search

Across multiple standalone
data sets

*Structured Data - Unstructured Data - Sensor Data -
Time Sequenced Data - Transactional Data
Telemetry - Logs - Real Time Data - Historical Data -
Machine Data - Application Data*



Time Sequenced Foundational Model + Machine Data Lake

SUMMARY



Edge First
AI Native Infrastructure



Quantum Proof
Security



Universal
Zero Trust



Infrastructure as Code
goes mainstream



Emerging AI
Threat Landscape



Smart Programmable
Buildings



Multi-Cloud/Intercloud
Portability



Agentic AI
Operations



Data Fabrics and Data Mesh
Architectures