

Digital InfraCo

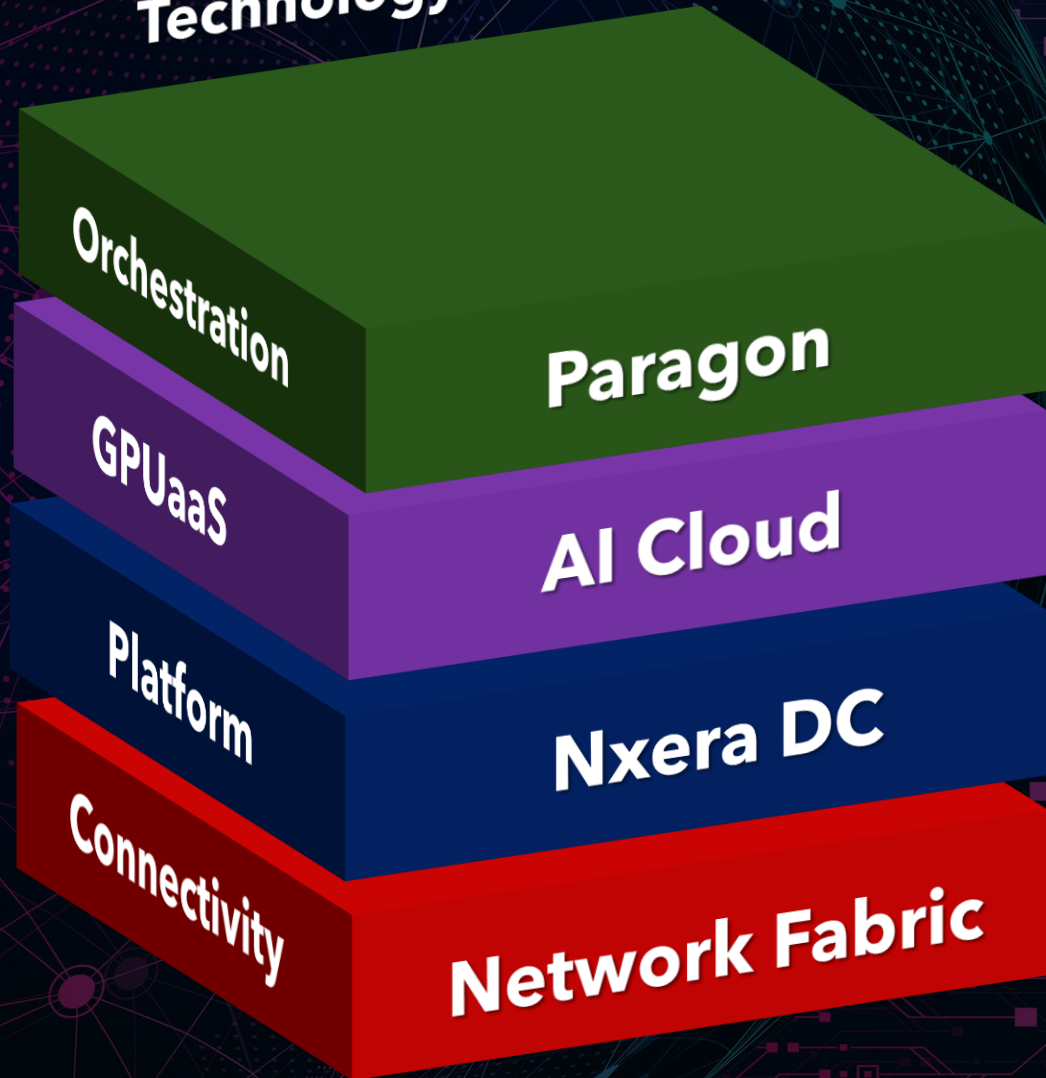
Investor Day | 29 August 2024

Bill Chang

CEO of Nxera and Singtel's Digital InfraCo

Digital InfraCo Vision

Digital InfraCo Capabilities & Technology Stack



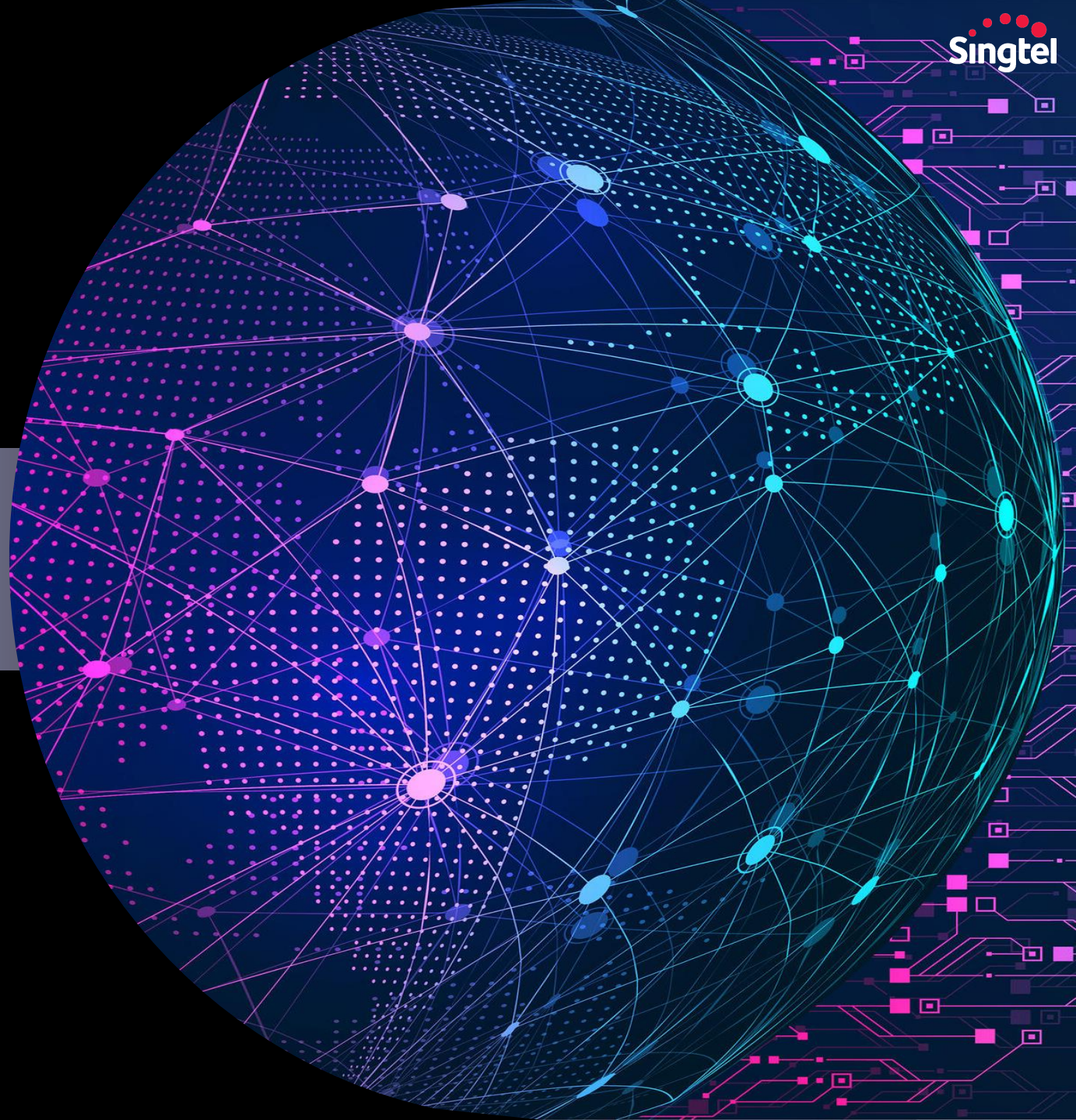
Enable and empower Telcos, Enterprises and DC operators to thrive in the 5G edge and AI cloud era

Regional AI-as-a-Service provider with the best connectivity service offerings

Sustainable, Hyper-connected, AI Ready DC provider in Asia

Leading connectivity operator in Asia Pacific to enable digitalisation

Nxera



nXera To be the leading Sustainable, Hyperconnected and AI ready DC platform in the region



	KC2, DC West and DC Tuas Total: 120 MW
	JV with Gulf (40%), Singtel (35%), AIS (25%) Up to: 50MW
	JV with PT Telkom (60%), Singtel (35%), Medco (5%) Total: 50MW
	JV with TM (51%), Singtel (49%) Up to: 200MW

In progress to build Green DC Platform > 400MW



Thailand DC



Batam DC



SG Tuas DC



Malaysia DC



Target to operationalize > 200MW by end 2026 (out of total >400MW inventory)

- All our greenfield DCs will be **AI-ready**, equipped with best-in-class standards and liquid cooling capabilities
- **Interconnected** via subsea cables and will operate under a **single operating system**
- **Energy transition plans** with strategic energy partners

Note: Based on calendar year

Differentiator: Key Attributes of Nxera Platform

Industry leading power density design

- High efficiency Direct to Chip liquid cooling capabilities
- Rack density of up to 150KW/rack
- PUE <1.3
- Leading WUE performance

Excellence in Development & Operations

- Next-Gen, scalable and secure infrastructure
- Smart Operating Platform (SmartOSS) Digital Twin with AI/ML Ops

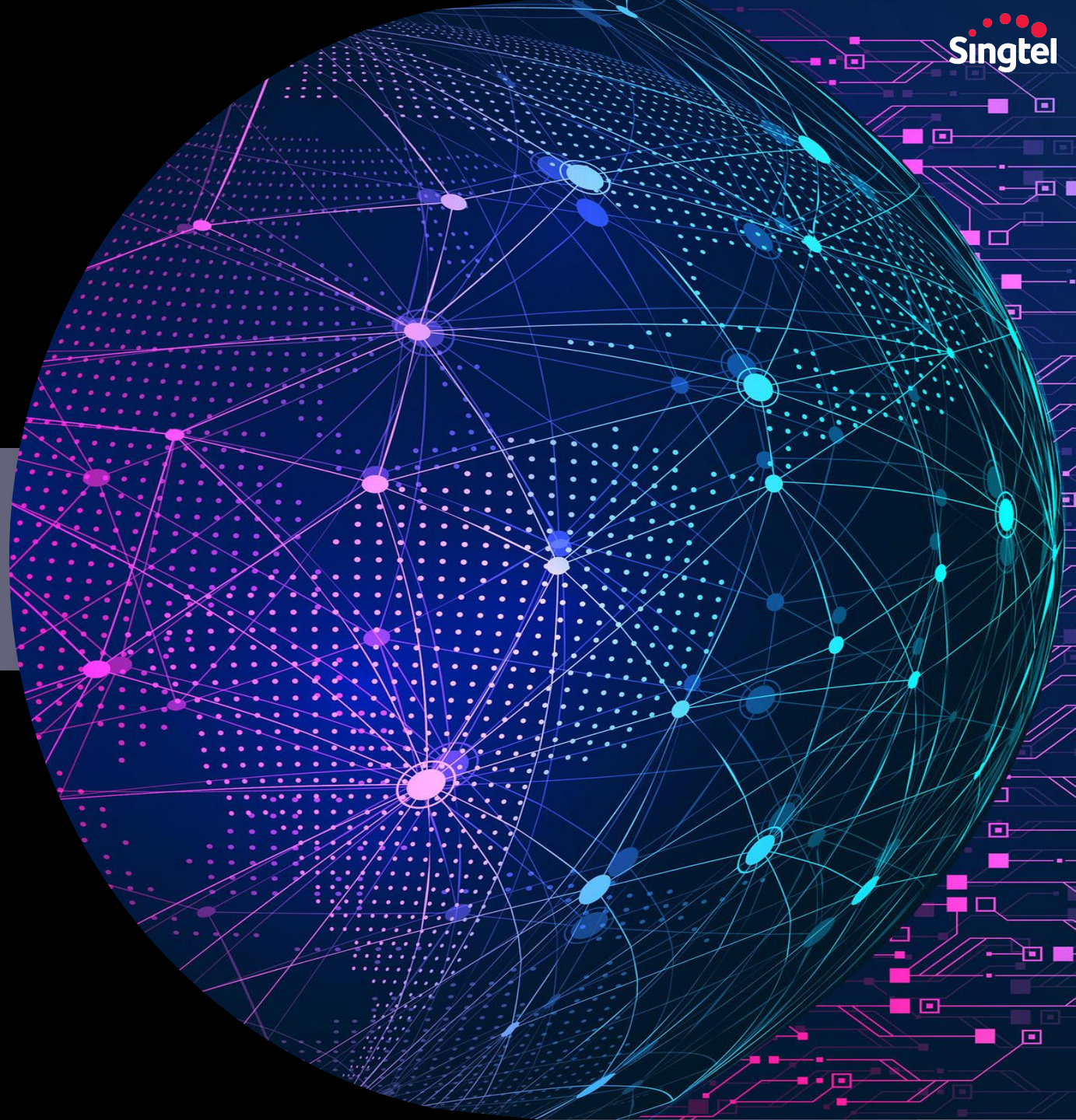
Hyper connectivity

- Subsea cable landing station at DC Tuas
- Carrier Neutrality
- Growing Data Centre Interconnect

Sustainability

- Net Zero Operational Emissions by 2028
- Access to Renewable Energy sources through strategic partnership and JV partners
- Self-serve customer decarbonisation platform

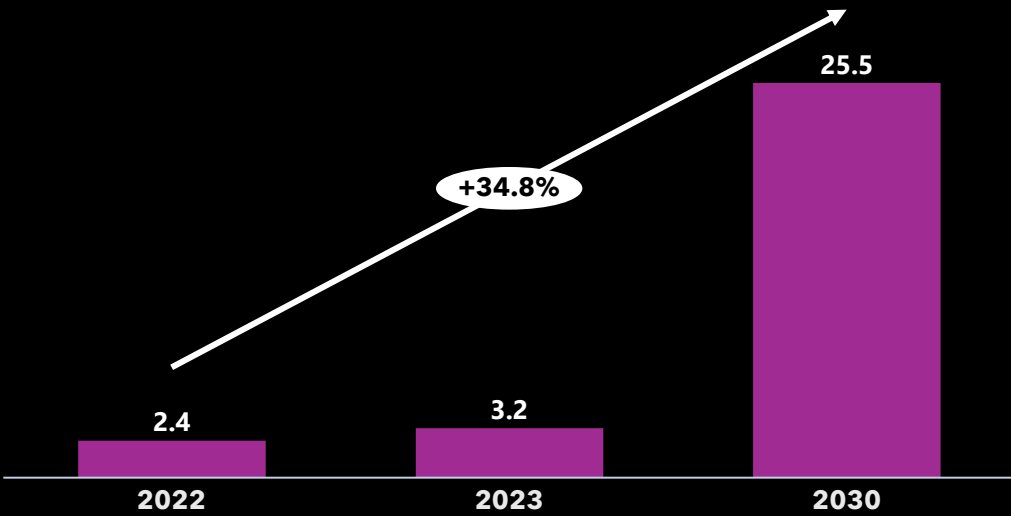
GPUaaS



GPUaaS Industrial Overview

GPUaaS industry is expected to benefit significantly from the rapid adoption of artificial intelligence uses cases

GPUaaS is forecasted to surge at a CAGR of **34.8%** to US\$25.5B from by 2030



Singapore Landscape

AI innovation remains a key focus for the Singapore government:

Singapore National AI Strategy 2.0 (NAIS 2.0)

S\$1B commitment to AI development in Singapore over the next 5 years



NATIONAL ARTIFICIAL INTELLIGENCE STRATEGY 2.0 TO UPLIFT SINGAPORE'S SOCIAL AND ECONOMIC POTENTIAL

Singapore, 4 December 2023 – Singapore's second National AI Strategy (NAIS 2.0) was officially launched today by Deputy Prime Minister (DPM) and Minister for Finance Lawrence Wong to address the challenges of our time, and uplift Singapore's collective economic and social potential over the next three to five years. The strategy

THE STRAITS TIMES FEB 21, 2024, 11:42 AM ·

In his Budget speech on Feb 16, Deputy Prime Minister and Finance Minister Lawrence Wong said the Government will invest more than \$1 billion over the next five years into AI compute, talent and industry development.

GPUaaS: Singtel's Partnership with Nvidia

Singtel announces new business line GPU-as-a-Service with Nvidia's GPUs, available in Southeast Asia in 3Q



Nicole Lim

Tue, Mar 19, 2024 · 10:51 AM GMT+08 · 2 min read

Aa ▾



The telco will be among the world's first to deploy Nvidia's GB200 Grace Blackwell superchips, dubbed 'world's most powerful chip' for AI. Photo: Bloomberg

Among the first in the world to deploy the most powerful next-generation NVIDIA GPUs

Singapore, 19 March 2024 – Singtel today announced it will be launching its GPU-as-a-Service (GPUaaS) in Singapore and Southeast Asia in the third quarter of this year, providing enterprises with access to NVIDIA's AI computing power to drive greater efficiencies to accelerate growth and innovation.

At launch, Singtel's GPUaaS will be powered by **NVIDIA H100** Tensor Core GPU-powered clusters that are operated in existing upgraded data centres in Singapore. In addition to NVIDIA H100 GPUs, Singtel will be among the world's first to deploy NVIDIA's next-generation GB200 Grace Blackwell Superchips, which deliver 30X faster real-time large language model inference than its predecessor. Singtel will be one of the first **NVIDIA Partner Network** Cloud Partners to receive them early next year. This will give enterprise customers options of different types of accelerators for their advanced computing and AI needs. The GPUaaS will then be expanded to run in three new sustainable, hyper-connected, high-density AI data centres by Singtel's regional data centre business Nxera in Singapore, Thailand and Indonesia when they begin operations. Singtel will be deploying more than 100MW of these next-generation sustainable AI-ready data centres through Nxera within the next three years.

"Our GPUaaS will run in AI-ready data centres specifically tailored for intense compute environments with purpose-built liquid-cooling technologies for maximum efficiency and lowest PUE, giving them the flexibility to deploy AI without having to invest and manage expensive data centre infrastructure."

Bill Chang,
CEO of Nxera and Singtel's Digital InfraCo

Singtel is the preferred partner to NVIDIA as an NCP with early access to the upcoming NVIDIA roadmap.

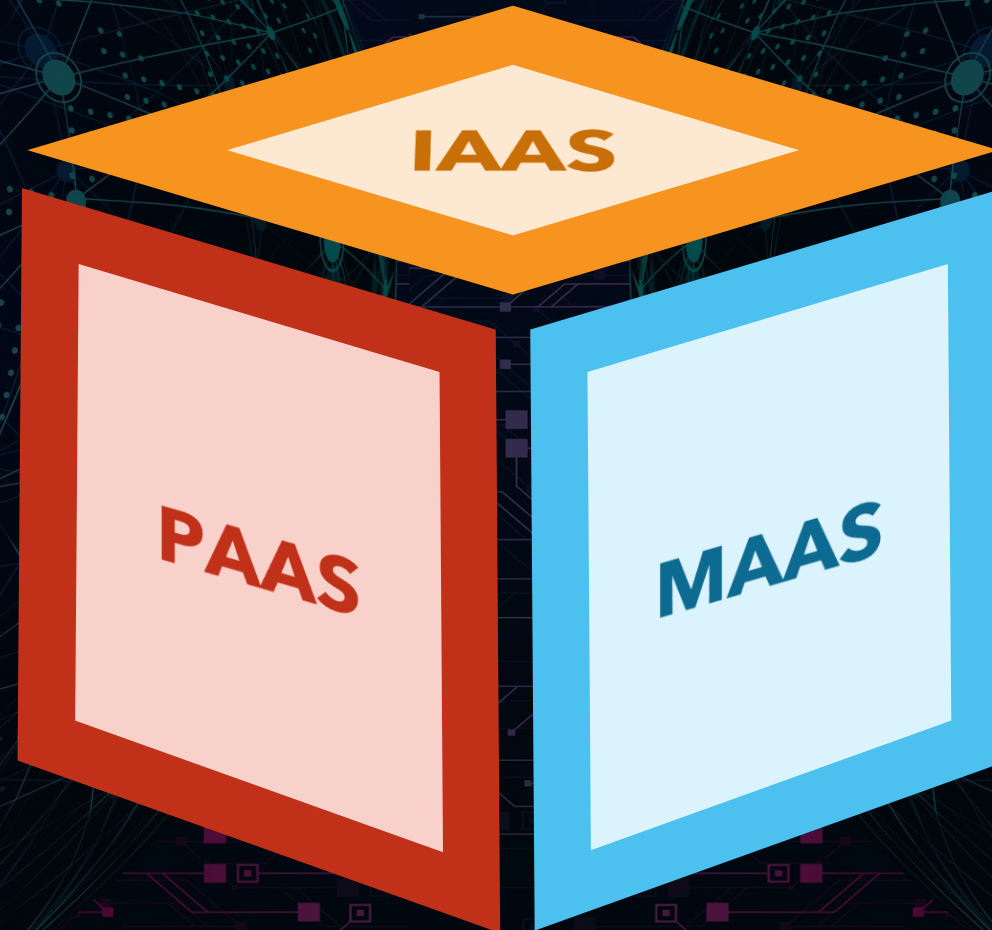
Key Features of Singtel AI Cloud to address Enterprise challenges on AI adoption

VGPU AND VM AS A SERVICE

VM's with CPU, Memory and entire physical GPU cards or vGPU cards optimized for inferencing workloads

AI WORKSPACE AS A SERVICE

- **Tensorflow as a service** on VM cluster or Multi-server cluster.
- **VisualStudio as a service** on VM cluster or Multi-server cluster
- **PyTorch/Jupyter as a service** on VM cluster or Multi-server cluster for AI model training coding.
- **Kubernetes as a service** on VM cluster or multi-server cluster for AI inferencing and training.



AI CLUSTERS AS A SERVICE

Multi-server cluster with each server having 8*H100 GPU cards. Available with Linux and Windows OS as per customer needs.

MODELS AS A SERVICE

Pre-trained AI models like LAMA2, MISTRAL available as a service as base models for customers to build incremental training on the base model and build AI apps rapidly

GPUaaS: Our competitive advantages to differentiate and win



Position as key **National Sovereign AI Cloud** provider for Govt and local large enterprises



Enhance **latency and throughput** to GPU cloud with orchestration of fixed, mobile and satellite networks to the edge



Expand Sovereign cloud proposition with strategic partners in the SEA region



SLA assurance for GPU performance to support mission critical AI use cases.



Leverage on Nxera's DC capabilities in building, managing and operating **sustainable, hyper-connected AI ready DCs** (with liquid cooling capabilities at scale)



Establishing **key partnerships** with leading U.S. and European GPUaaS providers to form **global alliance** to drive in bound AI workloads

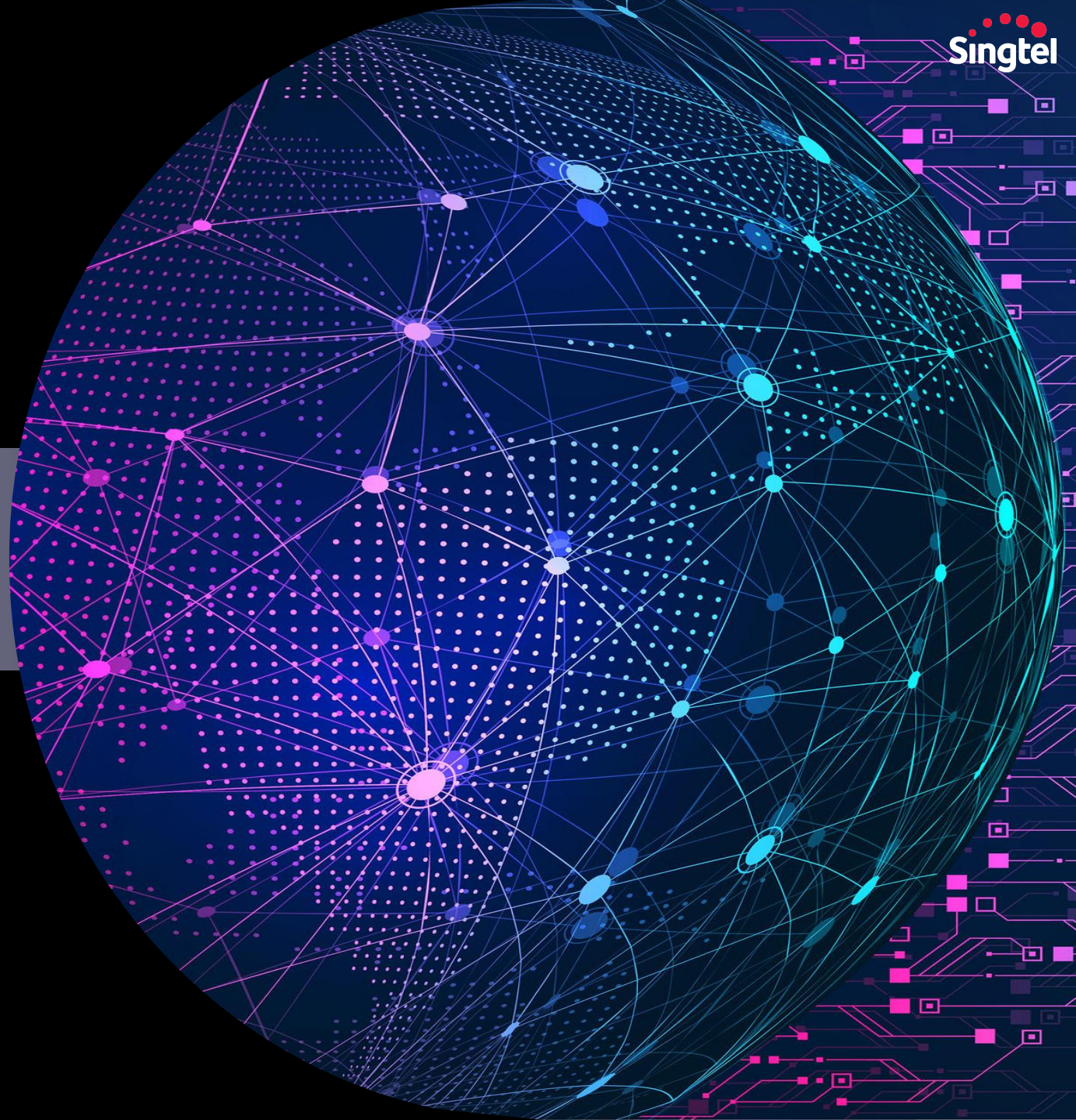


Paragon orchestration platform for ease of use by customers with different AI workloads.



Attract and develop **AI ecosystem**.

Enterprise Platform



Paragon - Industry's 1st Multi-Network, Multi-Infra and Multi-Cloud Aggregation & Orchestration platform

Differentiating our telco Offerings Beyond Connectivity with Edge Cloud, Applications & Services

Security and AI

5G Paragon Platform

APP Marketplace



Digital Interface with APIs



Multi-cloud Broker

MEC Manager

NaaS

Multi Public Cloud



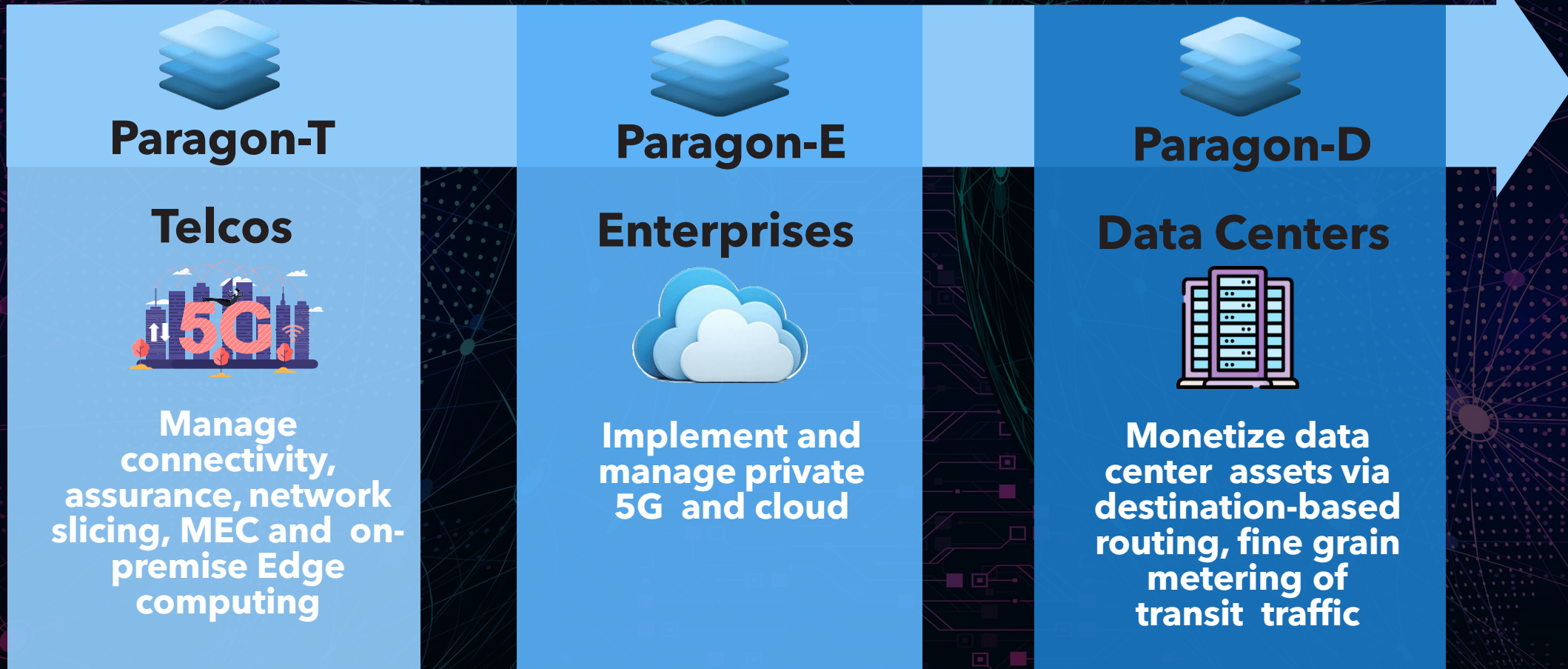
Edge/Private/GPU Cloud



Fixed Mobile



Paragon diverse beyond 5G and Edge, laying the foundations of growth in adjacent markets and unlocking value from existing markets



Paragon-X global adoption

TELCOS WITH PARAGON-T DEPLOYMENTS



ENTERPRISE WITH PARAGON-E DEPLOYMENT



GPUaaS Orchestration WITH PARAGON-D DEPLOYMENT



The image features a dark blue, futuristic cityscape at night, overlaid with a complex network of glowing lines and nodes. The Singtel logo is centered in the upper half, consisting of five red circles of varying sizes above the word "Singtel" in a white, sans-serif font. The background is a dense grid of light blue and purple lines connecting various points, suggesting a global or digital network. The city buildings are rendered in shades of blue and purple, with some lights visible. The overall aesthetic is high-tech and digital.

Singtel