



JABATAN PERDANA MENTERI
MALAYSIA



THE FOUNDATION OF A DIGITAL GOVERNMENT

Cloud Infrastructure for the Next
Generation of Public Services



Secure



Sovereign



Scalable

Empowering government agencies with **secure**, **sovereign** and **scalable** cloud infrastructure to deliver better digital services for rakyat.

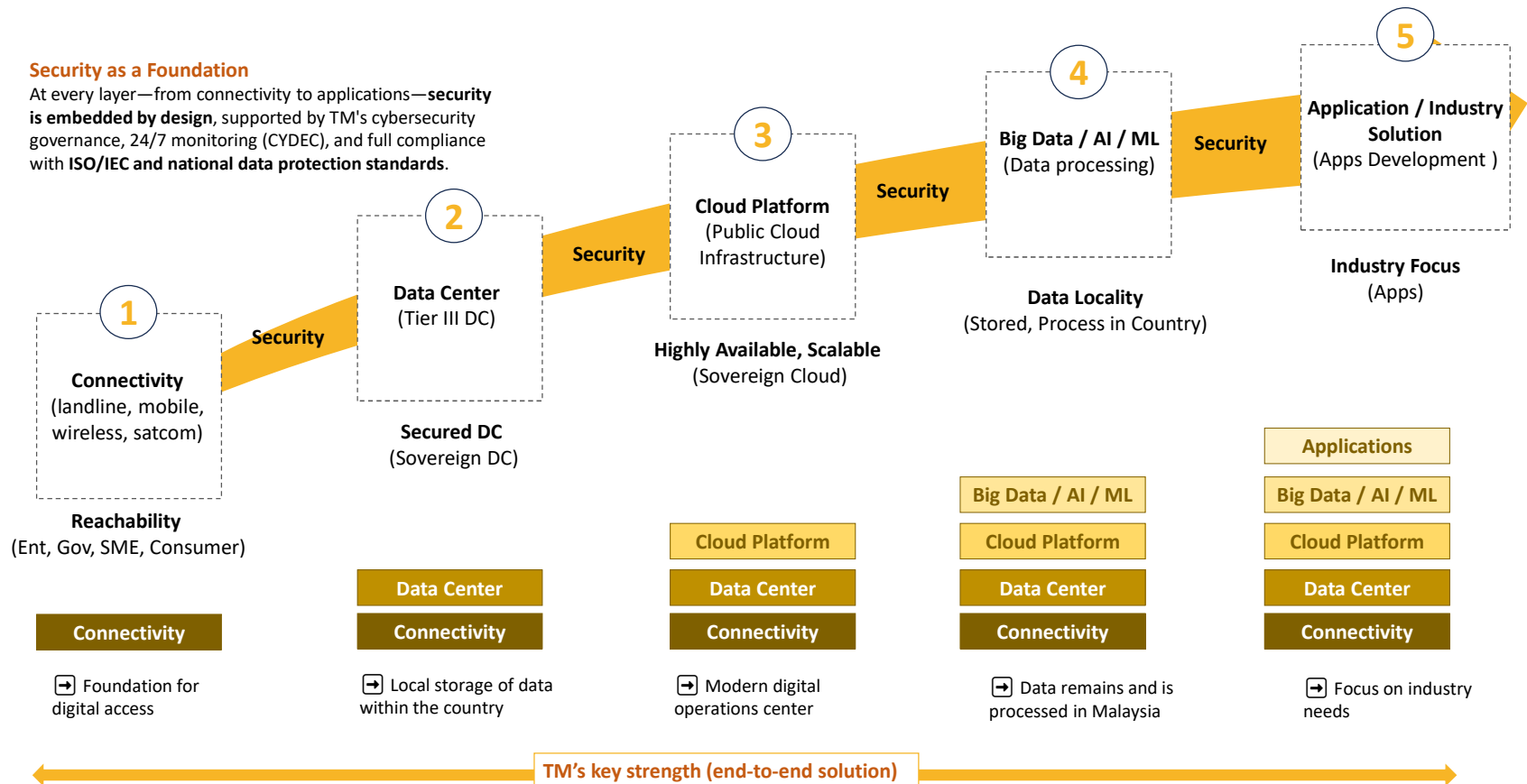
TM's Transformation Journey: From Telco to Technology Company

TM delivers a comprehensive end-to-end digital ecosystem, spanning connectivity, data center, cloud infrastructure, big data analytics, and application development — all secured within a sovereign framework.



Security as a Foundation

At every layer—from connectivity to applications—**security is embedded by design**, supported by TM's cybersecurity governance, 24/7 monitoring (CYDEC), and full compliance with ISO/IEC and national data protection standards.



TM's integrated stack enables customers to rely on a **single provider** for a **full-spectrum, secure digital solution**, making it an ideal technology partner for enterprises and government agencies in Malaysia.

TM Cloud Evolution Journey – From Foundation to Innovation



TM has been at the forefront of cloud infrastructure services since 2011. Over the years, we have continuously evolved our cloud offerings to address customer needs, enhance data sovereignty, and support hybrid and sovereign cloud strategies

2011

VADS CLOUD SERVICES



2011 – Launch of Public Cloud Services

- Initiated Cloud Journey under VADS
- Offered public cloud infrastructure built on VMware technology
- Hosted at <https://www.vadscloud.com>

2014

VADS CLOUD SERVICES



2014 – Enterprise Virtual Private Cloud

- Introduced Enterprise VPC solutions using VMware vCloud Director
- Designed for secure, dedicated environments tailored for enterprise customers

2019



2019 – Hybrid Cloud & Data Sovereignty

- Launched TM ONE Azure Stack / Azure Cloud offering
- Addressed growing demand for hybrid cloud strategies with local data residency

2021



2021 – Launch of Alpha Edge Cloud

- Deployed TM Cloud Alpha Edge, a local hyperscaler public cloud infrastructure
- Built on OpenStack technology for sovereign, scalable and secure cloud adoption

2025 and Beyond

Continuous Innovation

- On-going focus on:
 - New service enablement
 - Continuous cloud performance improvement
- Key platforms
 - ☒ Cloud Alpha Edge
 - ☒ VMWare Cloud (by Broadcom)

☒ Key Focus Areas

- Enablement of **sovereign digital transformation**
- **Seamless hybrid cloud** experiences
- Alignment with **national compliance and security frameworks**

TM is the Cloud Service Provider (CSP)



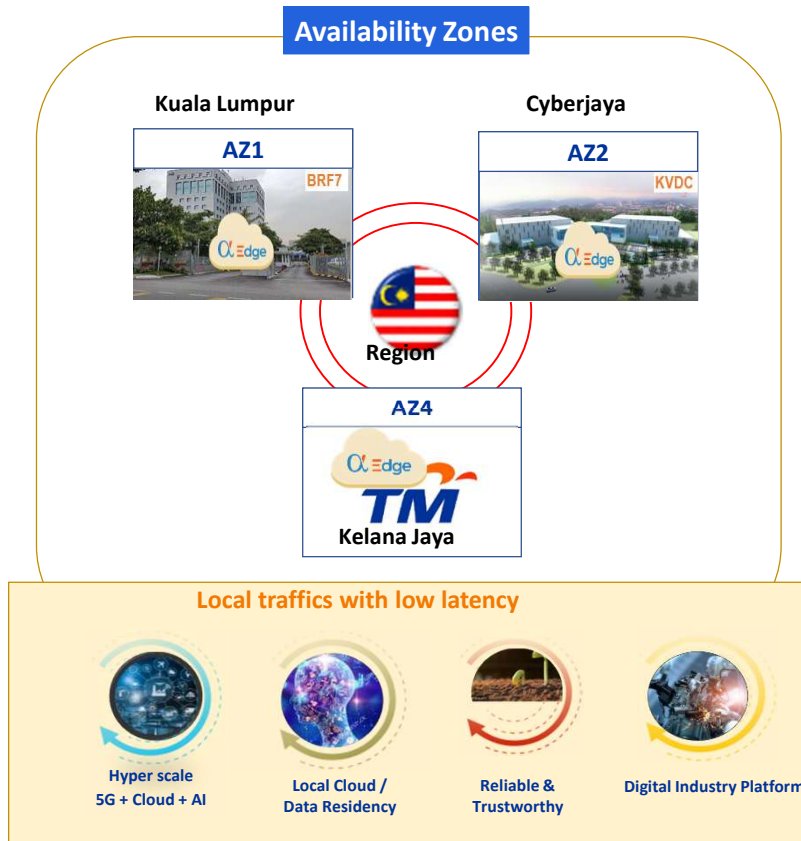
In 2021, TM step up role in accelerating Digital Government. TM is the **ONLY** local cloud hyper-scaler that is being appointed under Government's MYDIGITAL panel standing tall with other global cloud providers like AWS, Microsoft and Google.

Launched: 19 FEB 2021



TM Cloud and Cybersecurity Services for the Government of Malaysia provides full cloud capabilities (TM ONE Cloud α), comprises end-to-end cloud services – embracing Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), Software-as-a-Service (SaaS), Cloud Professional Services and Managed Cloud Services.

Complying to National True Cloud and Data Sovereignty



Data Residency

(Refers to the physical location of data within a country's borders)

- **Data Center Location:** TM CAE data centers located within Malaysia specified by the customer's compliance requirements
- **Legal Compliance:** TM ensure that the storage and processing of data adhere to the Malaysian local laws and regulations where the data is stored

Data Sovereignty

(Refers to data is stored subject to the laws of the country in which it is located)

- **Local Control:** The ability for data to be controlled under the laws of the country where it resides. TM has local operations and management of the cloud services
- **Compliance with Local Legislation:** Adhering to all applicable Malaysian laws and regulations, including those governing data protection, privacy, and access by law enforcement
- **Jurisdictional Restrictions:** TM ensure that the data can be protected from foreign control or interference, which may require specific contractual agreements with service providers.

TM CAE – Enterprise-Class Security and High-Availability Infrastructure

TM CAE is architected with **multi-layered physical security, tiered access controls**, and a **redundant high-availability infrastructure** to ensure business continuity and compliance with national and international standards

Internationally Recognized Certifications in Security & Compliance:



Redundant & Highly Available Infrastructure

ISO 22301:2019 Business Continuity Management (BCM)
Ensures **service availability** and **resilience** against disruptions

ISO 27001:2013 Information Security Management System (ISMS)
Manages sensitive information systematically and ensures data security

ISO 27018:2015 Protection of Personally Identifiable Information (PII)
Protects personal data in cloud environments

PCI DSS 3.2.1 Payment Card Industry Data Security Standard
Ensures **secure handling of credit/debit card** transactions and regulatory compliance

ISO 27017:2015 Code of Practice for Cloud Security
Provides cloud-specific security guidelines

SOC 2 Type I Service Organization Control
Ensures systems are designed for **security, privacy & data integrity**

SOC 2 Type 2 Service Organization Control

Phase 2 expansion : on-going construction work has commenced for Block 2



CERTIFICATION & COMPLIANCE



Redundant & Highly Available Data Centre Infrastructure

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
- Building Perimeter - Guard House (24x7 security team) - CCTV Surveillance 24x7 - Fencing (Anti-Climbing) - Fence Intrusion Detection System (FIDS) - Gates & Road Blocker K12 Rated - Crash Rated Beam K4	- Visitor Verification at Guard House - VMS Barcode Scan 1st Pass exchange to access DC Command Centre/Receptionist Counter	- Security Screening - Walk-Through Metal Detector - X-ray & Hand Held Metal detector - Personnel & Vehicle (delivery)	Personnel Flap Barrier with anti-Pass back feature	2nd Pass Exchange at Building Lobby Reception Counter & VMS Barcode Scan - PV Enrollment for Selected Customer to Access Data Hall at Layer no 8
Physical Security Control – 9-Layer Defense				
- Access card at common corridor - Mantrap – anti tailgating - Weighing system - Anti pass back feature	- Smart Card Access to DC Block - Only customer can access DC Block - Unauthorized personnel are not permitted to be at DC Block	- Dual factor (palm vein and card) access to Data hall - Data Hall corridor monitored by CCTV	- Contactless Smart Card Access to Individual Cage/Suite - Rack Access Control (user side) - Key Management System (for retail customer). For cage customer rack key under customer responsibility.	

Cloud Infrastructure Built for Malaysia – Designed, Built, and Operated by TM

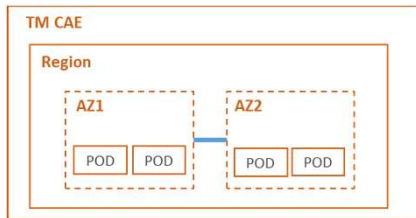


TM CAE delivers a purpose-built, sovereign cloud infrastructure that supports **high availability**, **secure multi-tenancy**, and **regional performance**. TM ensures full-stack ownership of infrastructure from design to operation, enabling trusted public cloud deployment for regulated industries.

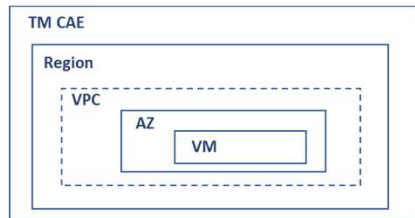
Region, AZ and DC Design Principles

(A region supports multiple Availability Zones (AZs), and each AZ can accommodate multiple Data Centers (DCs))

Physical view



Tenant view



- **Region:** A collection of Availability Zones (AZs) enabling global services like authentication
- **AZ:** Each AZ is a physically isolated resource zone with independent infrastructure, ensuring fault tolerance and low latency (<2ms VM-to-VM RTT)
- **POD:** Virtualization resource pools providing compute and storage resources
- **Region → VPC → AZ → VM:** A hierarchical structure ensuring network isolation and performance optimization for tenants.

Security and Infrastructure Layer

Design Layer, Infrastructure Layer, Data Layer and Security Control Mechanism

These layers work together to uphold **compliance, availability, and data protection** for all cloud tenants.

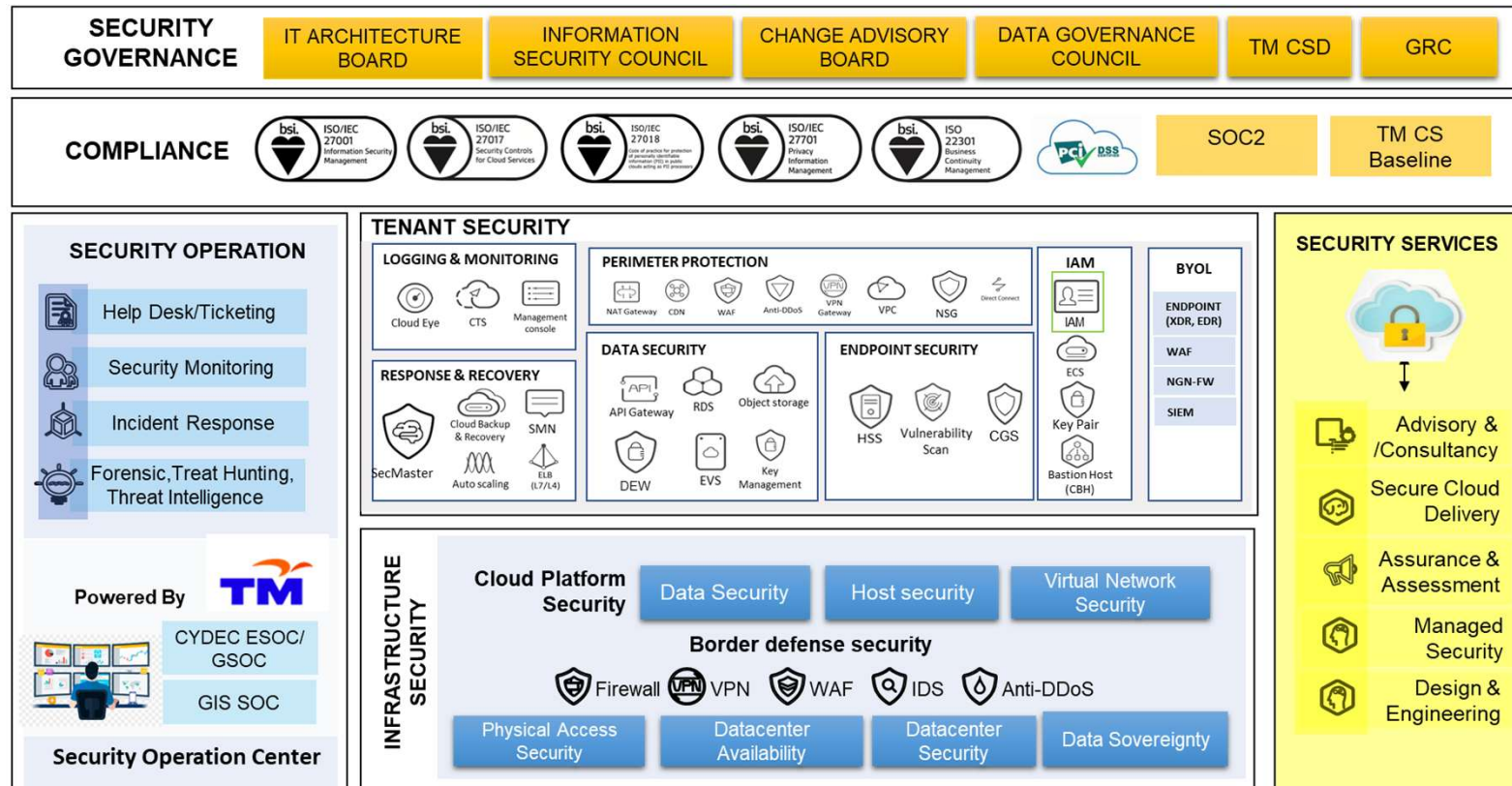
Concepts and Functions

Concept	Function	Description
Region	Localized data centers	Ensures low-latency and data residency by operating within Malaysia
VPC	Virtual Private Cloud	Provides secure, isolated network environments for each tenant
AZ	Availability Zone	Delivers high availability and redundancy with low-latency interconnectivity
DC	Data Center	Physical infrastructure with path-protected, high-bandwidth backbone networks.
POD	Resource Pool	Virtualized compute and storage pools that enable elastic scaling

TM Cloud Cybersecurity Framework

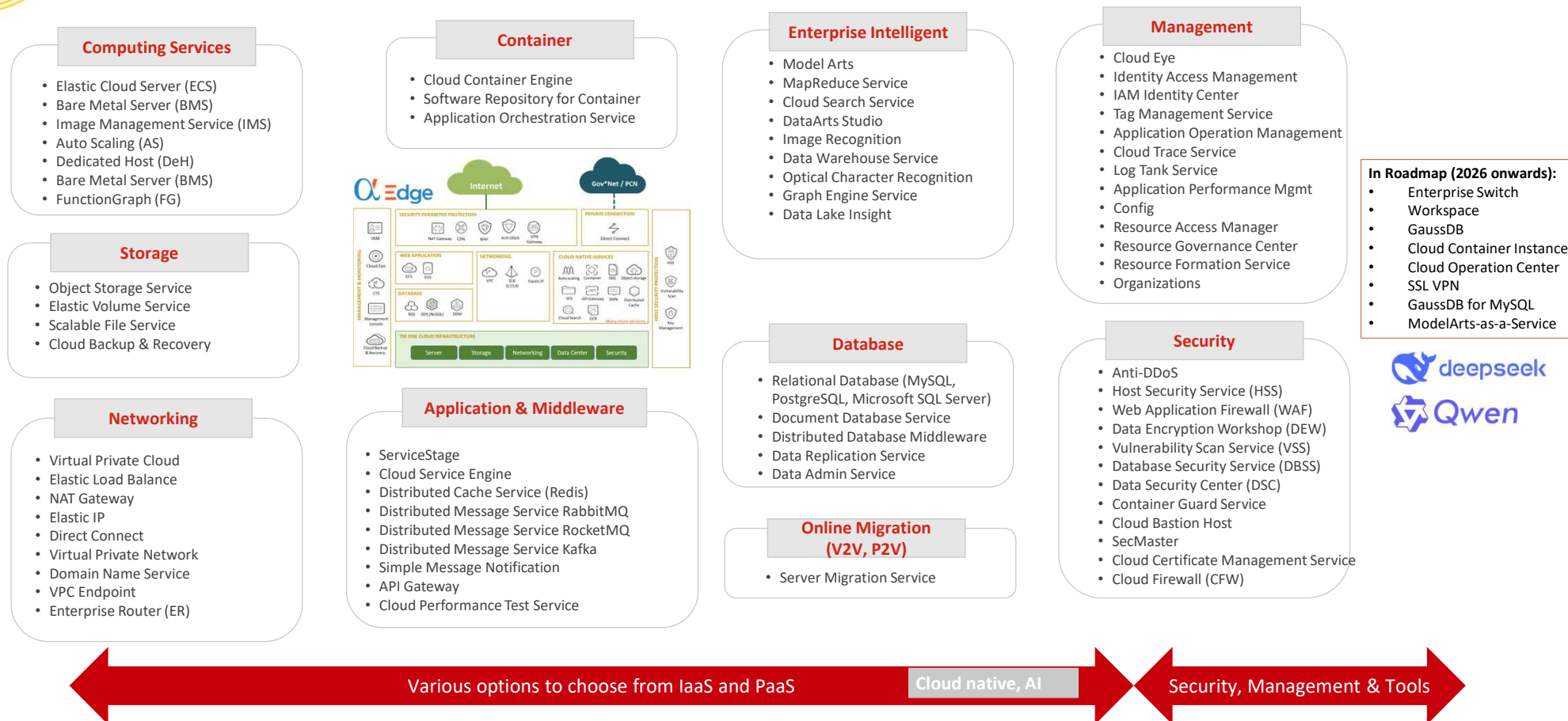


Compliance to governance for ensuring the cloud is secure at the infrastructure layer and tenant layer.



TM Cloud Comprehensive and Expanding Service Portfolio

TM Cloud Alpha Edge (CAE) offers a robust and growing list of services tailored to support the digitization and digitalization needs of modern businesses





Key Benefits of TM Cloud

1

Billed in Local Currency

All transactions use Malaysian Ringgit (MYR) —no risk of foreign exchange rates or conversion fees.

2

Data Sovereignty & Compliance

Personal and **financial data** is stored and processed entirely in Malaysia —in compliance with local laws.

3

High-Performance & Stable Network

Network infrastructure is optimized for high-bandwidth communications and low latency —suitable for real-time systems.

4

Dedicated Local Support

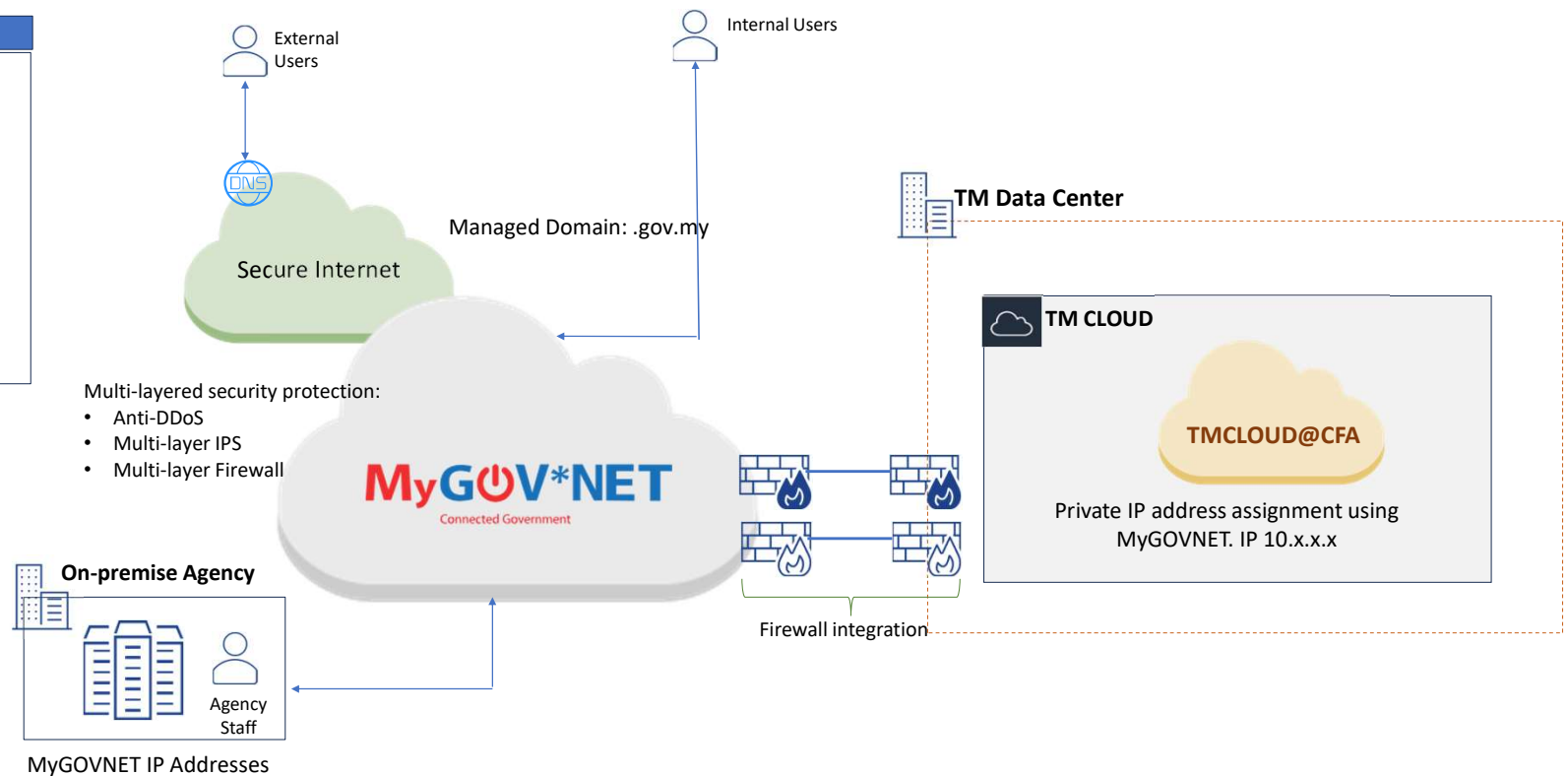
TM provides a support team **based in Malaysia** that is fast and easily reachable — for technical issues, consultation, and operations

TM Cloud Provides Network Extension to MyGovNet

To remain securely connected to Government network by utilizing TM Cloud integration to MyGOV*NET. With proposed network architecture solution, customer can consider TMCloud@CFA as another virtual Data Center (via Intranet)

Notes

- Agency can maintain the same domain, DNS and SSL certs
- Agency can maintain the same public IP addresses
- Seamless access to TMCLLOUD@CFA via current IT network
- Integration with Government Services can be done securely



TM CAE Solution & Use Cases



Case Study / References



Case Study

Pangkalan Data Utama (PADU) (Ministry of Economy)

Maneraju Akses Digital membantu kerajaan memperkembangkan pengurusan sosioekonomi negara

Client Requirements

Kementerian Ekonomi (KE) is looking for a scalable, elastic, secure and high-performance IT infrastructure that can be quickly setup and scale automatically to handle high volume of traffic for a duration of time.

Results

TM Cloud Alpha Edge

- > 15 million traffics handled by TM Cloud after announcement

Values to Customer

- Cost efficiency / optimization
- Branding / reputation
- Meeting business objective & SLAs
- Successful data collection



Case Study

SPM / STPM / STAM Results (Ministry of Education)

Ministry of Education (MOE) is looking for a scalable, elastic, secure and high-performance IT infrastructure that can be quickly setup and scale automatically to handle high volume of traffic for a short period of time. All the students or parents should be able to obtain SPM / STPM / STAM results via online without any hiccup.

Results

TM Cloud Alpha Edge

- 4.5 million traffics successfully viewed results within early 15 minutes after announcement

Values to Customer

- Cost efficiency / optimization
- Branding / reputation
- Meeting business objective & SLAs

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Case Study

SUNWAY MEDICAL CENTRE (Sunway City)

EMR-Integrated HIS & SunMed Go

MALAYSIA'S NO.1 HOSPITAL

Client Requirements

To modernize its healthcare management system, Sunway Healthcare Group (SHG) collaborated with Health Insights Asia to develop a robust and scalable EMR-integrated HIS. This collaboration is further strengthened by strategic partnerships with Telekom Malaysia (TM), which provide the TM Cloud and robust connectivity to support the system's functionalities.

Results

TM Cloud Alpha Edge

- Real-time data access
- Access real-time healthcare data through a single point of access
- Improved Decision Making
- Seamless access to comprehensive patient health information

Values to Customer

- Enhanced patient experience
- Telemedicine capabilities
- Data security and compliance



Case Study

systemone (Centralized Clinical Management System (CCMS))

Centralized Clinical Management System (CCMS)

Client Requirements

TPP provides a robust electronic health record (EHR) system to streamline operations, enhance data accessibility, and improve patient outcomes for clinics in Malaysia. The goal was to adopt a solution that supports various care settings, including primary care, hospitals, and urgent care. Telekom Malaysia (TM), provide the TM Cloud with robust connectivity to support the system's functionalities.

Results

TM Cloud Alpha Edge

- Real-time data access
- Securely access and update patient records in real-time
- Improved Decision Making
- Primary care doctors can make data-driven decisions

Values to Customer

- Enhanced patient experience
- Telemedicine integration
- Cost optimization & scalability
- Healthcare analytics & reporting

Non-exhausted lists...

MALAYSIA DIGITAL SOVEREIGNTY

OUR DATA. OUR CLOUD. OUR FUTURE.

“ While the technology may come from anywhere,
the rules will be made in Malaysia. ”

– YAB Dato' Seri Anwar Ibrahim
Prime Minister of Malaysia



SOVEREIGN BY DESIGN

- Data resides in Malaysia
- Governed by Malaysian laws
- Secured by trusted local infrastructure



BUILT BY MALAYSIANS

- Local innovation
- Local talent
- Local expertise

TM
TM Cloud Alpha Edge

SOVEREIGN CLOUD.
TRUSTED FOR GOVERNMENT.

BY TM CREDENCE



FOR GOVERNMENT

- Secure
- Reliable
- Compliant
- Future-ready



FOR MALAYSIA

- Strengthen national capability
- Drive digital economy
- Ensure long-term self-reliance

SECURE. SOVEREIGN. RESILIENT.
CLOUD INFRASTRUCTURE DEVELOPED IN MALAYSIA,
FOR MALAYSIA

EMPOWERING GOVERNMENT

Modern, reliable and
always-on services for
better outcomes



PROTECTING OUR DATA

Keeping Malaysia's
data within our control
and under our laws



DEVELOPING OUR PEOPLE

Nurturing local talent
and capabilities for
a digital nation



ADVANCING OUR NATION

Building a resilient,
sovereign and competitive
digital Malaysia

TM Cloud Alpha Edge
by TM Credence



**BUILD
IN MALAYSIA.**



**HOST
IN MALAYSIA.**



**PROTECT
IN MALAYSIA.**



KEMENTERIAN DIGITAL
REPUBLIC OF MALAYSIA



The background of the advertisement features a night view of the Kuala Lumpur skyline, including the Petronas Towers and the National Mosque of Malaysia. A stylized map of Malaysia is overlaid on the skyline, composed of a network of blue lines and glowing yellow nodes, representing digital infrastructure. The Malaysian flag is visible in the top left corner.

THE FUTURE OF MALAYSIA'S DIGITAL INFRASTRUCTURE

The decision before us is not simply about adopting **Cloud**.
It is about deciding where Malaysia's
data, capability, and digital future
will reside.

Let us **innovate**.
Let us strengthen **sovereignty**.
Let us build **capability**.

KEEP MALAYSIA'S DIGITAL FUTURE IN MALAYSIA



Built in Malaysia.
Developed by Malaysians, for Malaysia.



Hosted in Malaysia.
Data resides within Malaysia.



Governed in Malaysia.
Aligned with Malaysian laws
and regulatory requirements.



Cloud Alpha Edge
by TM Credence

TERIMA KASIH



KEMENTERIAN DIGITAL
JABATAN DIGITAL NEGARA

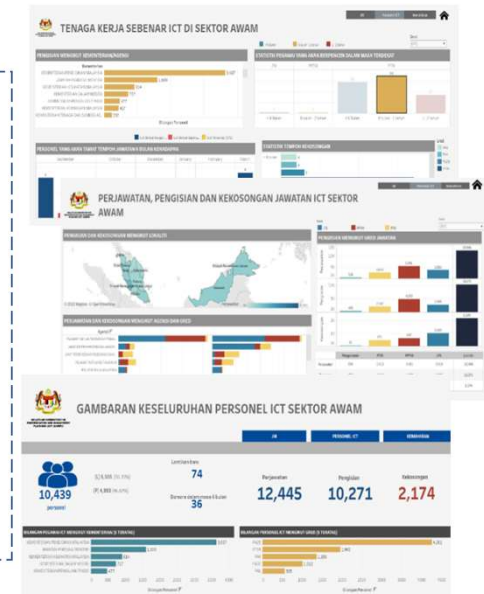
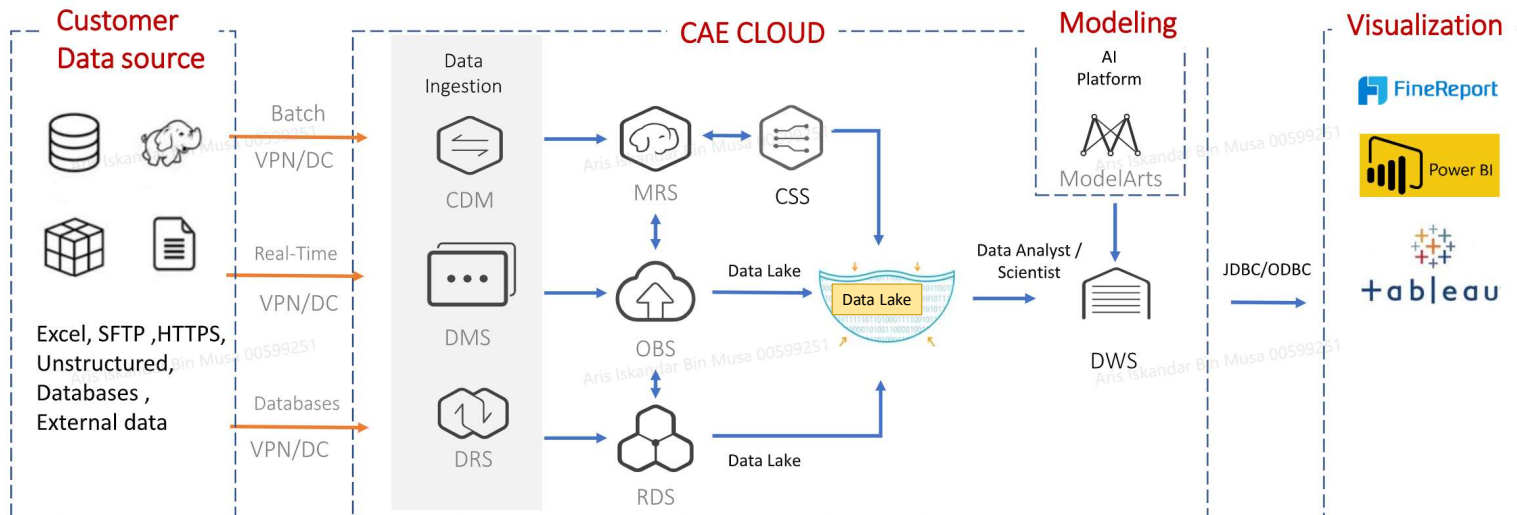
Empowering Malaysia's Public Sector
with AI for a Smarter Tomorrow





Solution – Using TM CAE Big Data Analytic (BDA) services

Big Data Analytics requires a very complex IT infrastructure to host large amounts of data including data governance. The amount of data and types of data are increasing rapidly. TM CAE has essential services to implement Big Data Analytics Solutions



Key services

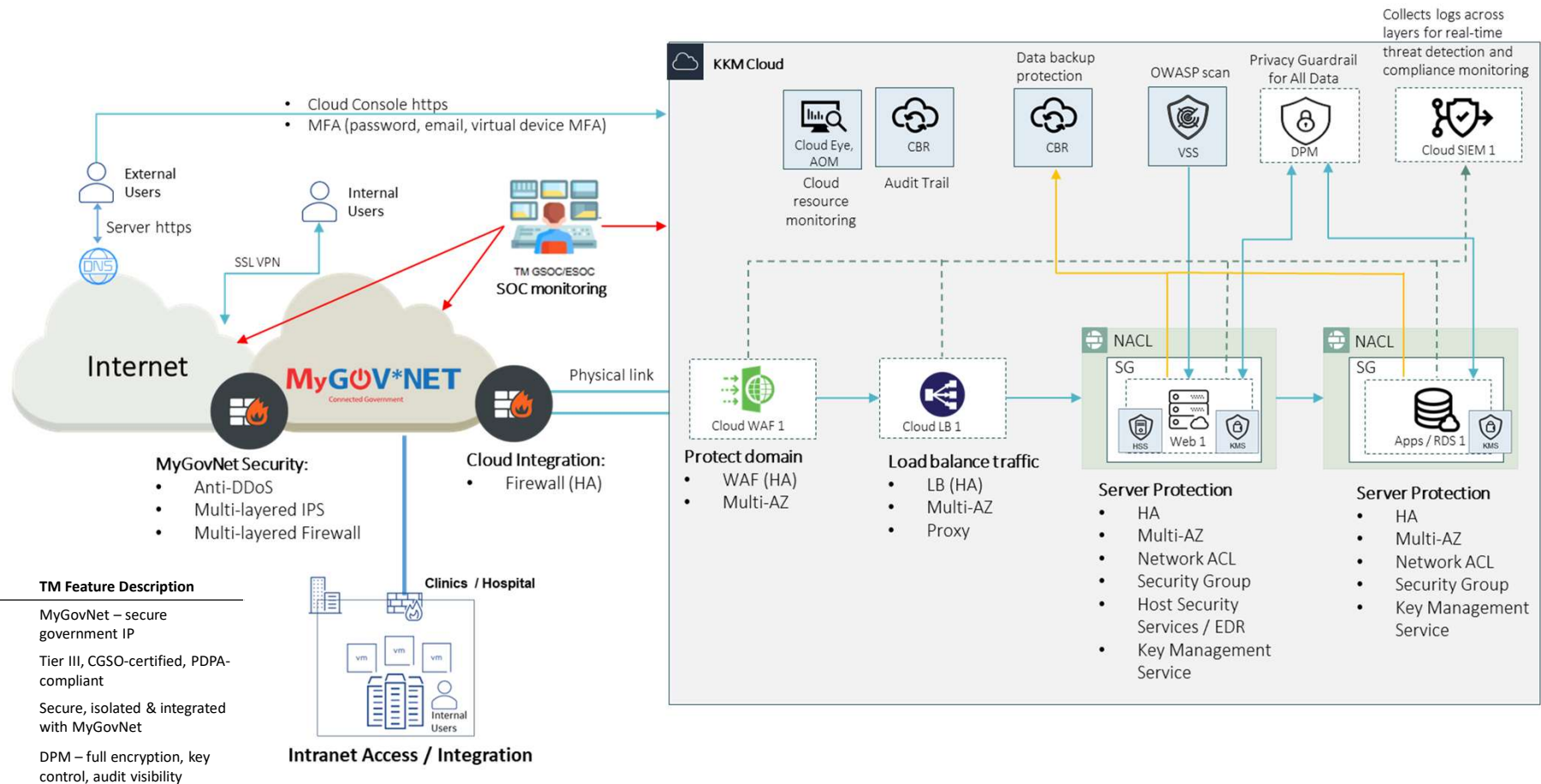
- Cloud Data Migration (CDM)
- Distributed Message Service (DMS)
- Data Replication Service (DRS)

- MapReduce Service (MRS)
- Object Storage Service (OBS)
- Relational Database Service (RDS)

- Cloud Search Service (CSS)
- Data Warehouse Service (DWS)
- ModelArts

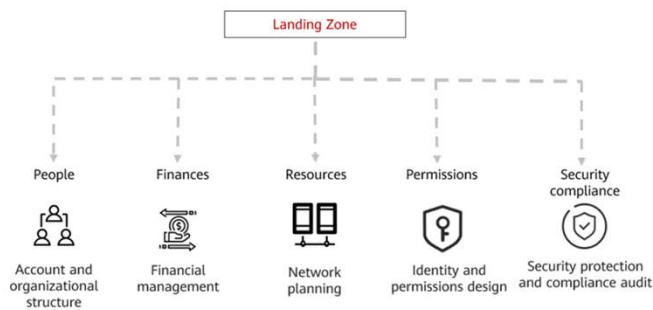
Solution – Protecting Government Agencies with TM Cloud’s Multi-Layered Defense

Enabling secure government network connectivity from Government agencies to TM Cloud with true end-to-end protection

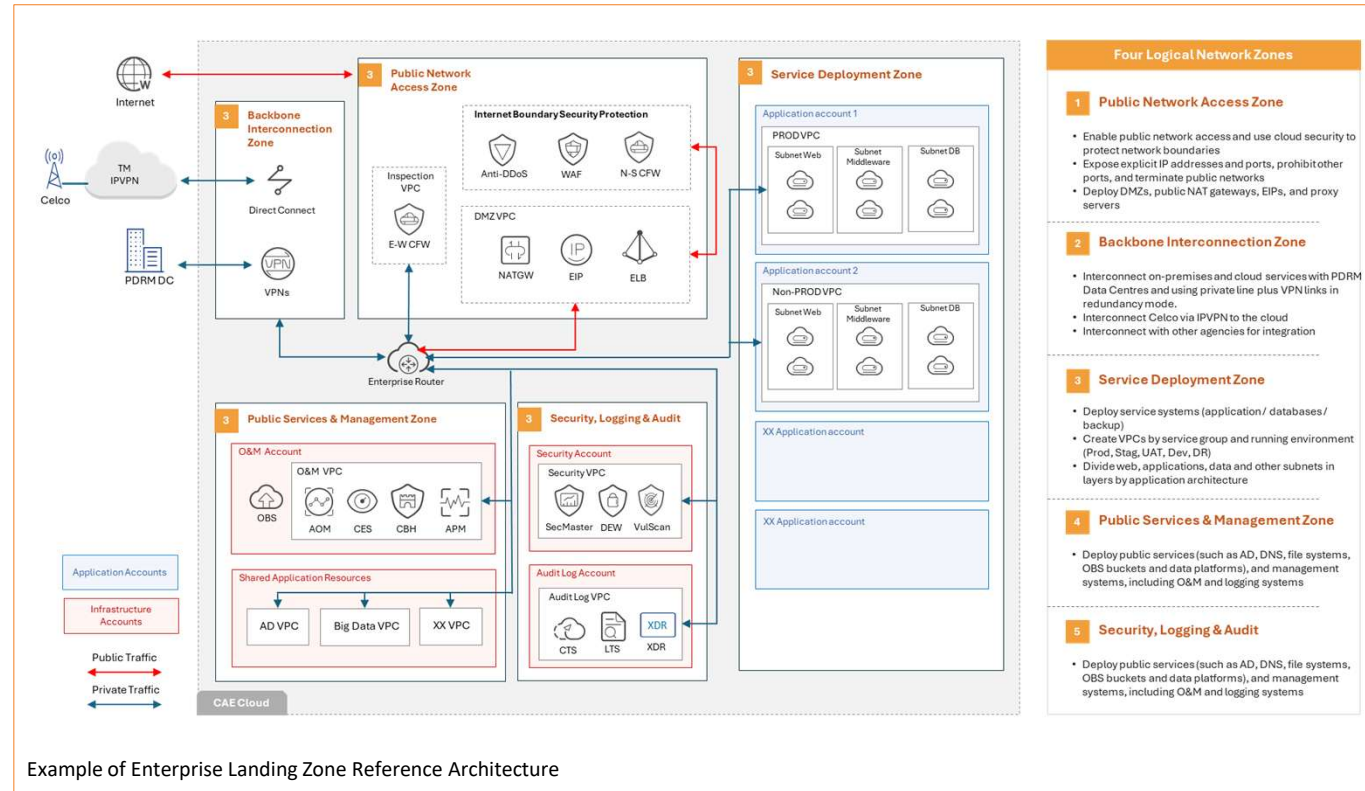


Solution – Build Highly Scalable And Secured Cloud Environment

Enterprise Landing Zone setup is important customer to build a strong cloud foundation and governance layer



- **Cloud onboarding made easy** with blueprint adapting to dynamic organizational structure
- **Consolidated management** for finance and governance
- **Consistent resource provisioning** with infrastructure as code and network planning
- **Access management** across organization and tenant
- **Secure and compliant** framework adopting to cloud



Example of Enterprise Landing Zone Reference Architecture



Solution – Use TM CAE AI Trained Model

AI is a complex platform that requires highly skilled AI engineers with deep knowledge of AI inference and algorithms. TM CAE has been added with ModelArts (ExeML)

Zero
Coding

Step 1:
Upload and label data

Zero
AI Experience

Step 2:
Train AI model

Step 3:
Validate and release the AI
model

The interface displays five AI service tiles at the top, each with a 'Create Project' button:

- Image Classification**: Identify classes of objects in images.
- Object Detection**: Identify the position and class of each object in images.
- Predictive Analytics**: Classify or predict structured data.
- Sound Classification** (New!): Identify classes of sounds in audio files.
- Text Classification** (New!): Identify classes of text in text files.

The main view shows a project titled 'exeML-traffic-light' with tabs for '1 Label Data', '2 Train Model', and '3 Deployment Online'. The 'Label Data' tab is active, showing a grid of 16 images labeled 'traffic-light'. The 'Labeled' count is 528, and 'Unlabeled' is 0. On the right, the 'All Label 2' panel shows a list of labels: 'traffic-light-green' (403) and 'traffic-light-red' (502). Below this, the 'Training Configuration' panel shows settings for 'Max Training Duration (h)' (0.25), 'Max Inference Duration (ms)' (200), and 'Incremental Training Version' (None). A red 'Train' button is at the bottom right.

Training can be completed in 1 hour



Solution – Use TM CAE AI Object Classification Model (Supervised ML)



VS.



Object classification and also AI model training to distinguish the object input is a cat or a dog

It is quite difficult because:

- Both have similarities in terms of fur, being four-legged, having a tail, and also the character of a pet

The screenshot displays the TM CAE AI Object Classification Model interface. It includes a 'Version Manager' section with three versions (V002, V003, V004) and their respective accuracies (58%, 70%, 71%). A 'Training Details' section shows the training process completed on Feb 05, 2024. A 'Test Result' section shows the model's performance on a test set, with a 'Cat' accuracy of 99% and a 'Dog' accuracy of 100%. A 'Service Test' section shows a prediction for a cat and a dog, with a 'Cat' accuracy of 99% and a 'Dog' accuracy of 100%.

Version	Accuracy	Status
V004 (cbbe9959-d0f1-439f-ad9b-6f14f...)	71%	Completed
V003 (39cdf4af-1bc1-49a4-8fc4-cacaf...)	70%	Completed
V002 (02494cb1-795...)	58%	Completed

Test Result:

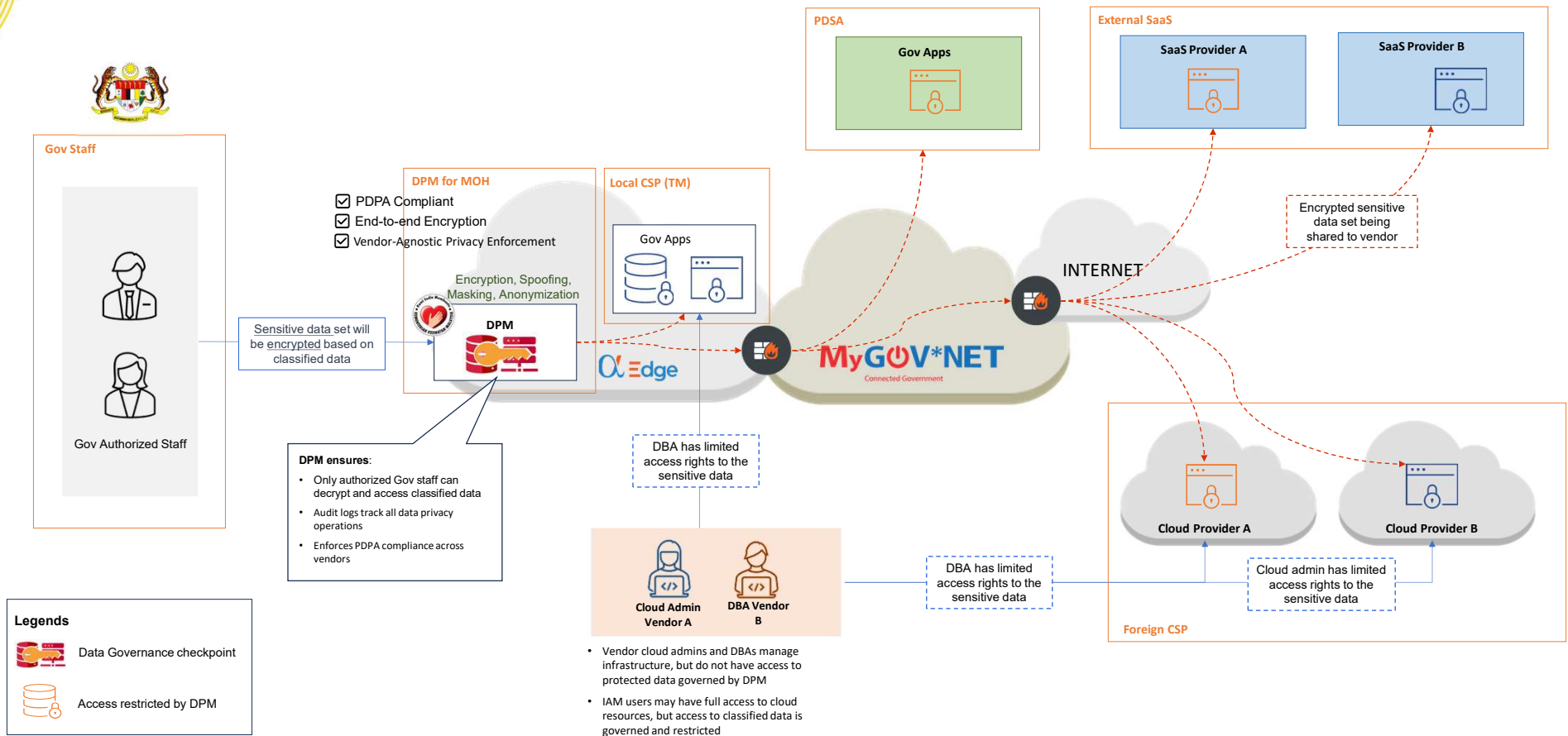
Class	Accuracy
Cat	99%
Dog	100%

Service Test:

Class	Accuracy
Cat	99%
Dog	100%

Solution – Protecting Government Data with TM Cloud's Privacy Service

Owning data + true sovereignty means controlling who can access it, where it is stored, and how it is used

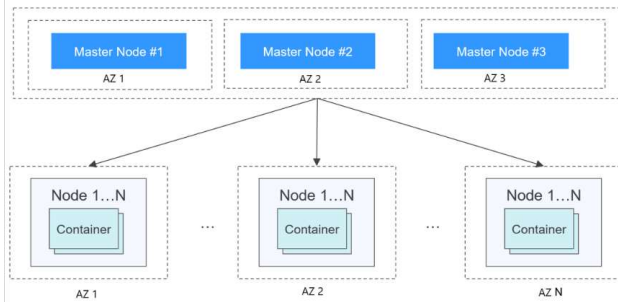




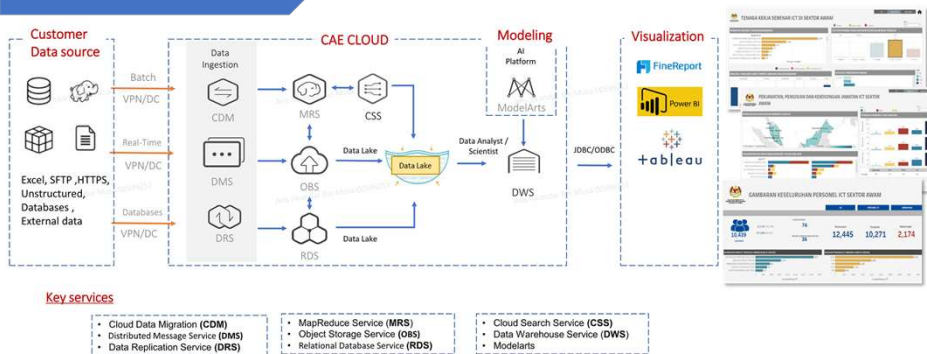
Application Enhancement – Leverage on technologies

By moving into TM Cloud, customer can utilize the emerging technologies e.g. Big Data Platform, AI/ML

1 Modern Architecture (Containerization)



2 Big Data & Analytics Platform



3 AI / Machine Learning

Smart Assistant: Common dialog interaction

Customer inquiries

- Customer consultation
- Order processing
- Intelligent Conversation

Position assistant

- R&D assistant
- Marketing training partner
- Document Assistant

@China Mobile - China National Petroleum Corporation "Industry Expert"

Copywriting & Official Business: Real-time knowledge search

Copywriting generation

- News Summary
- Legal instruments
- Marketing copywriting

Document review

- Contract review
- Compliance Check
- Risk Assessment

@Hunan Mobile: Official document writing

Development & Scientific Research: Professional industrial knowledge

Software development

- Code development
- Code test

Scientific research

- Basic science
- Data mining

@China telecom: scientific research assistant platform

Application Use Cases (e.g. AI Chatbot)

Application Development Platform / Workflow

AI Trained Model



TM Cloud Infrastructure / GPUs