

Government Data Center Modernization Strategy Focus Group Discussion

13 March 2017



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Introduction

Frost & Sullivan, a global research and consulting firm, is working with EGA on the Modernization scope defined



About Frost & Sullivan



40+ offices in 30 Countries
across 6 continents

2,000+ consultants

250,000+ clients serviced
worldwide, including
Governments, Fortune 1000
companies & SMEs

Global Footprint



Public Sector & Government

Corporate & Business Unit

M&A

Business Process Re-
engineering

Operations

Sales & Marketing

Turnaround

Consulting Services



Industry Groups

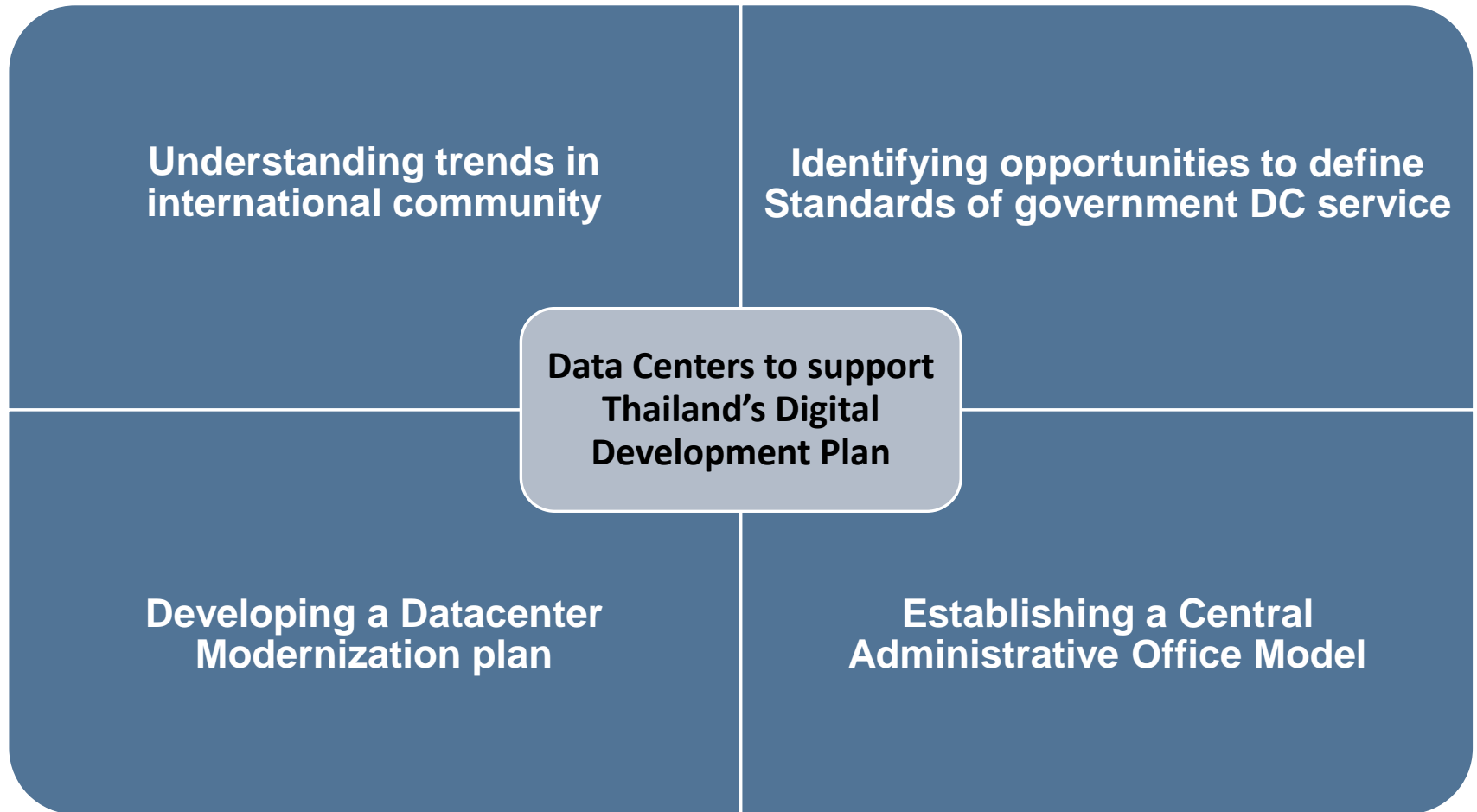
14 Industries

50+ Product and Service
Categories

Combination of Market,
Technology,
Economics & Applications

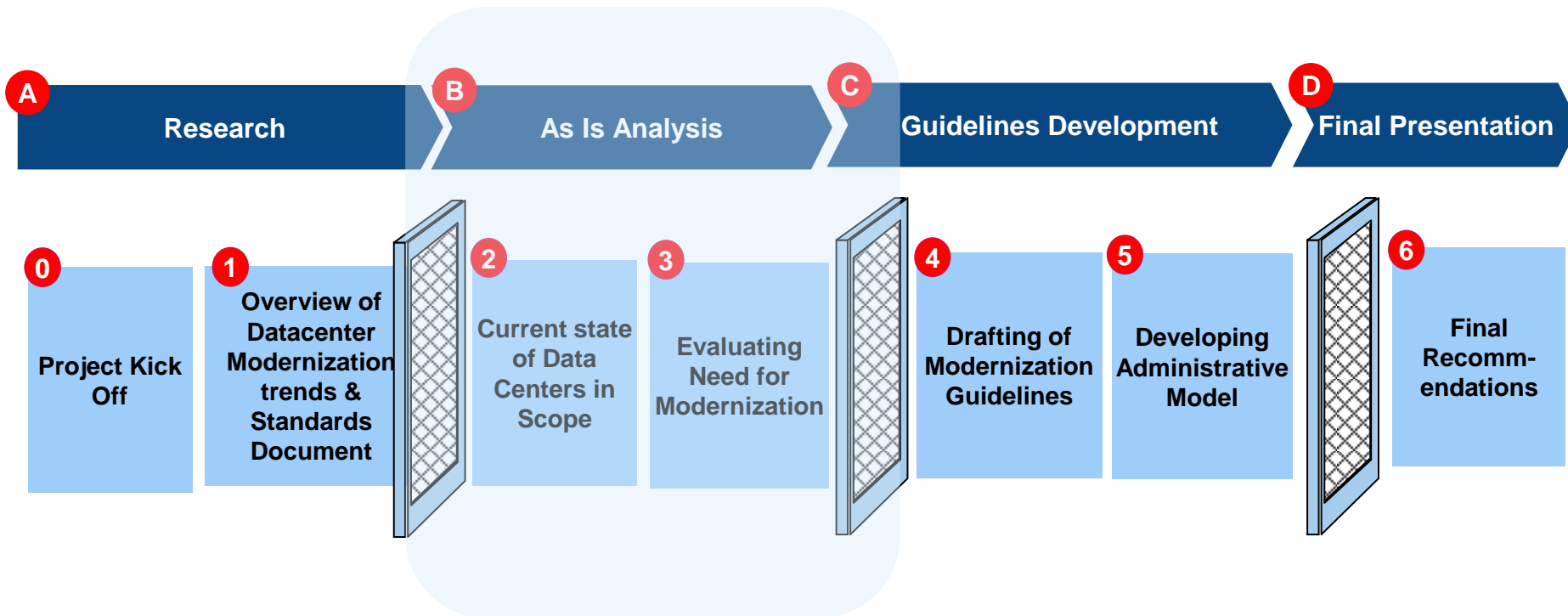
Industry Expertise

EGA has identified 4 broad aspects to the Data Center Modernization initiative



The Project is being delivered in 3 phases

Proposed Approach



Focus Group Discussion

Objectives



1 Deliberate over present scenario and roadmap

2 Build deeper insights for the As- Is analysis

3 Enable alignment on identified areas

4 Validate emerging hypothesis

Trends in Data Center Modernization

Across the world, Data Center Modernization is a hot topic in DC community where countries range from adopting new tools, technologies and optimization techniques



1

Adoption of cloud at a rapidly growing pace in line with increasing maturity of cloud operations across the globe

2

Increasing investments in security technologies including encryption for own data center setups

3

Increased usage of cross-agency infrastructure sharing and shared services

4

Focus on cost optimization resulting from tighter government budgets

5

Increased focus on handling of high security data

Government Data
Center Modernization

Thai Government Data Center Modernization is a strategic initiative to help the agency data centers align better with Thailand Digital Economy



Digital Thailand refers to the country's brilliance in taking full and creative advantage of digital technology to develop infrastructure, innovation, data capability, human capital, and other resources, thus propelling the country's economic and social development towards stability, prosperity, and sustainability.

With a population of 70 mn, Thailand is a large country with strong internal demand for data center and cloud services. The growth in the data center requirements is projected to grow at 30% in 2017.

There are 5 strategies to implement these goals

- Creation of a “hard” digital infrastructure across the country
- Acceleration of the economy by driving it with the use of digital technology
- Creation of a “digital society”; switching of the public sector to a “digital government”
- Development of a workforce ready for the digital era
- Creation of public confidence in the use of digital technology.

- The government believes that data center business will be an important part of its Digital Economy initiative.
- The Digital Economy is an important driver for growth, innovation, competitiveness and entrepreneurial spirit of Thailand that will boost the country's economy by and far
- A modern data center infrastructure is the most crucial element to accommodate growing demand for data, services, quality and digital economy

Aim of Government Data Center Modernization (GDCM) will be to accommodate the growing demands and enable a reliable and secured infrastructure



28_{mn}

2016 Internet Users

34_{mn}

2021 Internet Users

39%

2015 Internet Penetration

8th

Fastest Internet in Asia

86_{mn}

Mobile Subscribers 2015

127%

Mobile penetration 2015

Sources: Stastica, Worldbank, Bangkokpost, NBTC

- Data is growing VERY RAPIDLY
- Consumer needs, aspirations and requirements are growing at superfast pace

Key Considerations

Higher Security

Higher Utilization

Higher Capacity

Higher reliability and availability

Digital Economy and environment push the government data infrastructure to achieve higher quality of services and maturity



The ongoing and massive surge in data traffic will pave the way for a stronger infra backbone.

Cloud adoption will continue to thrive and agencies would increasingly rely on cloud including Government cloud services.

Critical factors for choosing a data center options will include access to reliable power, optical fibre networks and security (data as well as physical security).

Data centers would need to offer higher quality and reliable services to enable seamless business and government operations.

As the same time, data centers would need to keep scalability perspective in mind due to sheer growth of data in mind.

There will be an increased focus on IoT that will evolve from single-vendor solutions to those that talk to each other using the same data; with the increase in players and instances of use, real-time business and operational excellence will be crucial.

Government Agencies face numerous challenges for their data center infrastructure right from planning, to operations and maintenance



Number of Employees and their skillsets

Compliance requirements

Low utilization of infrastructure

Reduced budgets

Increasing cost of maintenance and operations including cost of energy

Data spikes

Data Security and need to manage the application requirements

Telecom infrastructure and it's challenges

Lack of skill sets in the Thailand marketplace

Lack of options for the right infra solution

With hundreds of government agencies operating across the country, agency and their DC heads, operate under few key priorities and issues

Data Security based decision making



High volume and growth of data



Efficient operations



Data Availability at all times



Multiple standards and adherence



Hiring and retaining right employees



Aging infrastructure

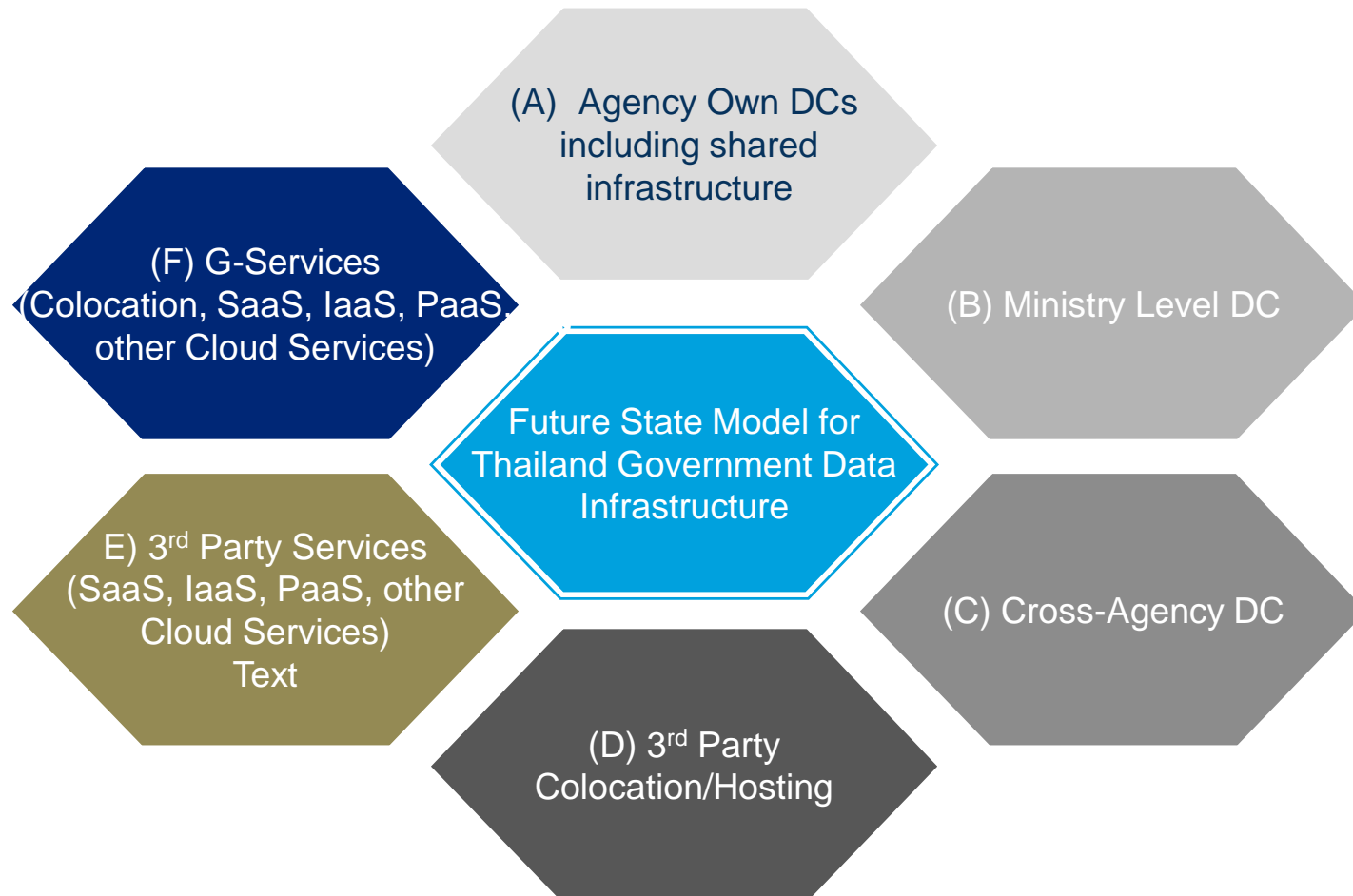


3rd party contracts



Future Operating Model

The Future State Model for Thailand Government Data Infrastructure is bucketed into 6 key areas



Please note that (E) 3rd party services does not include 3rd party colocation, which is captured as a separate service that's being also used currently as (D)

The Agency own DCs are the existing DCs while the ministry level DCs and cross agency DCs will be converted shared DCs to host and manage data for multiple agencies



A: Agency own DCs including Shared DCs

Definition

Internal agency setup, mostly existing. Usually the capex has been spent in development. Own DCs range from small server rooms to large DCs. Few agencies can opt for shared services depending on the type of own data stored, their location and utilization.

Who Manages

The agency own DCs will be managed by the agency and follow the agency structure.

Operations

Responsibility of operations will lie with the agency.

Current Condition: Existing

Future State: Will exist

B. Ministry Level DC

Definition

A larger DC converted into a ministry level DC to host multi-agency data belonging to same ministry.

Who Manages

Control of ministry DCs will be in the hand of specific ministry but the main agency will also have control.

Operations

Operations will be done by existing team. reporting into ministry.

Current Condition: No Existing as a separate entity

Future State: Will exist depending on outlook of government.

C: Cross-Agency DC

Definition

A larger DC converted into a multiple agency DC to host multi-ministry-multi-agency data including data for independent agencies.

Who Manages

There will be a regional team set up for this DC. The management team of current DC will need be a part of larger regional team.

Operations

Operations will be done by existing team. This team will now report into regional team.

Current Condition: Not Existing

Future State: Will exist based on government choice.

The 3rd party services include services provided by external companies while G-Services will be government provided and enabled services for cloud and colocation needs



D. 3rd Party Colocation/Physical Hosting

Definition

Hosting of physical servers at 3rd party companies to outsource the operations and day-to-day management, DC environment. This often comes at a higher cost and is preferred for agencies with lower requirements or low bandwidth for space and personnel.

Who Manages

Agency team will manage the data on 3rd party colocation.

Operations

3rd party provider as covered in contract.

Current Condition: Existing

Future State: Will reduce only on need be.

E: 3rd Party Services (Cloud, IaaS, SaaS, PaaS)

Definition

Hosting of data at 3rd party companies on the cloud without holding any physical infrastructure. Entire operations, hardware and day-to-day management is the responsibility of 3rd party operator, which comes at a higher cost, and security concerns. The services include Infra as service, Software as service, platform as service, storage, applications, database, integration etc.

Who Manages

Agency team will manage the data on 3rd party cloud.

Operations

3rd party provider as covered in contract

Current Condition: Existing

Future State: Will be re-looked from security angle.

F. G-Services (Cloud, IaaS, SaaS, PaaS and Colocation)

Definition

Governments own infrastructure that enables same benefits of that of 3rd party cloud operated at government level. This imparts higher security than 3rd party services and data resides at the government level. G-services include multitude of facilities including Infra as service, Colocation, Software as service, platform as service, storage, applications, database, integration etc.

Who Manages

Government owns and leads in the management of G-Cloud.

Operations

Internal provision or 3rd party support

Current Condition: Existing

Future State: Will increase based on security and other factors.

Questionnaire Detailing



Prepared by Frost & Sullivan (Thailand) Co., Ltd.