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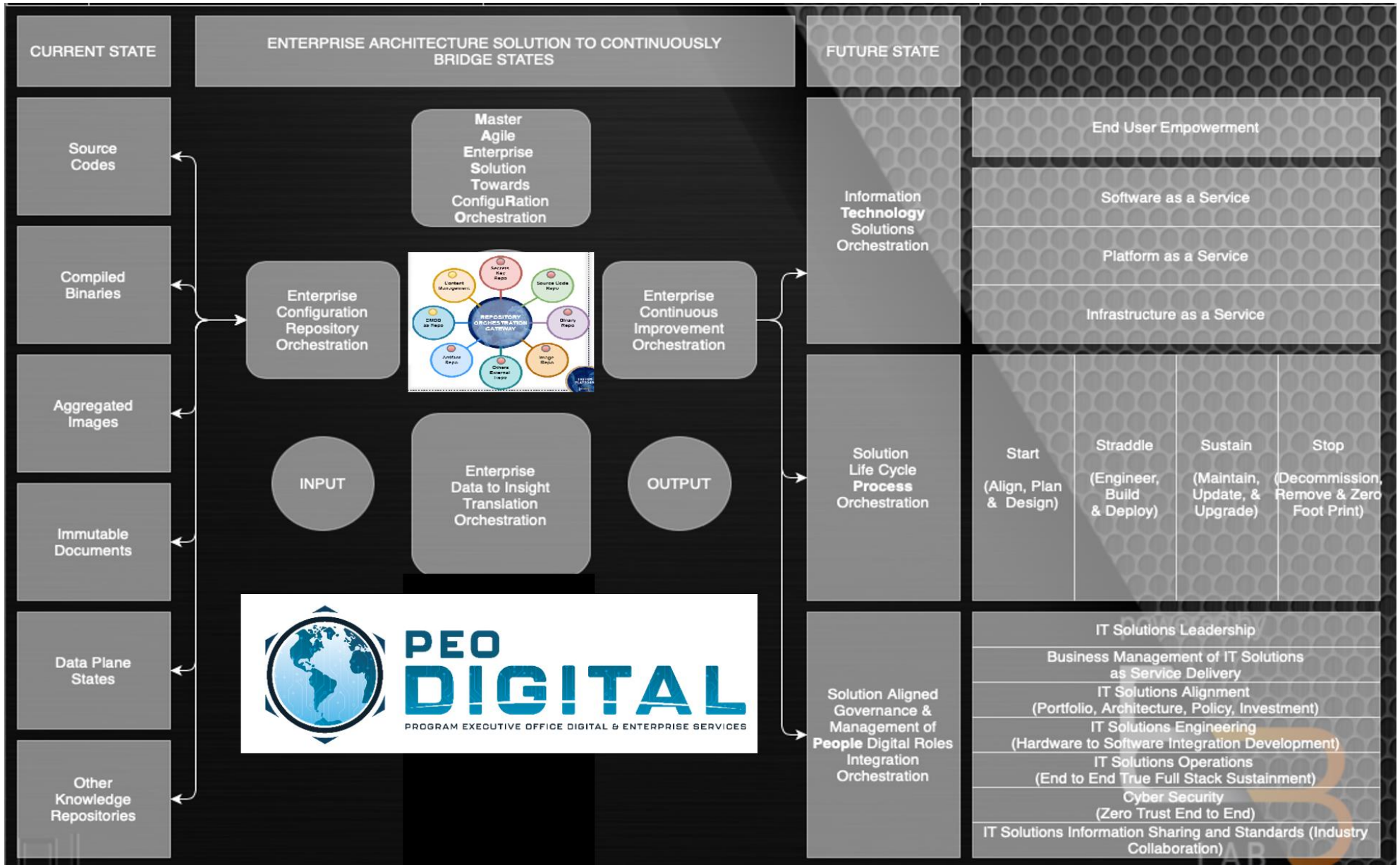
PROGRAM EXECUTIVE OFFICE DIGITAL & ENTERPRISE SERVICES

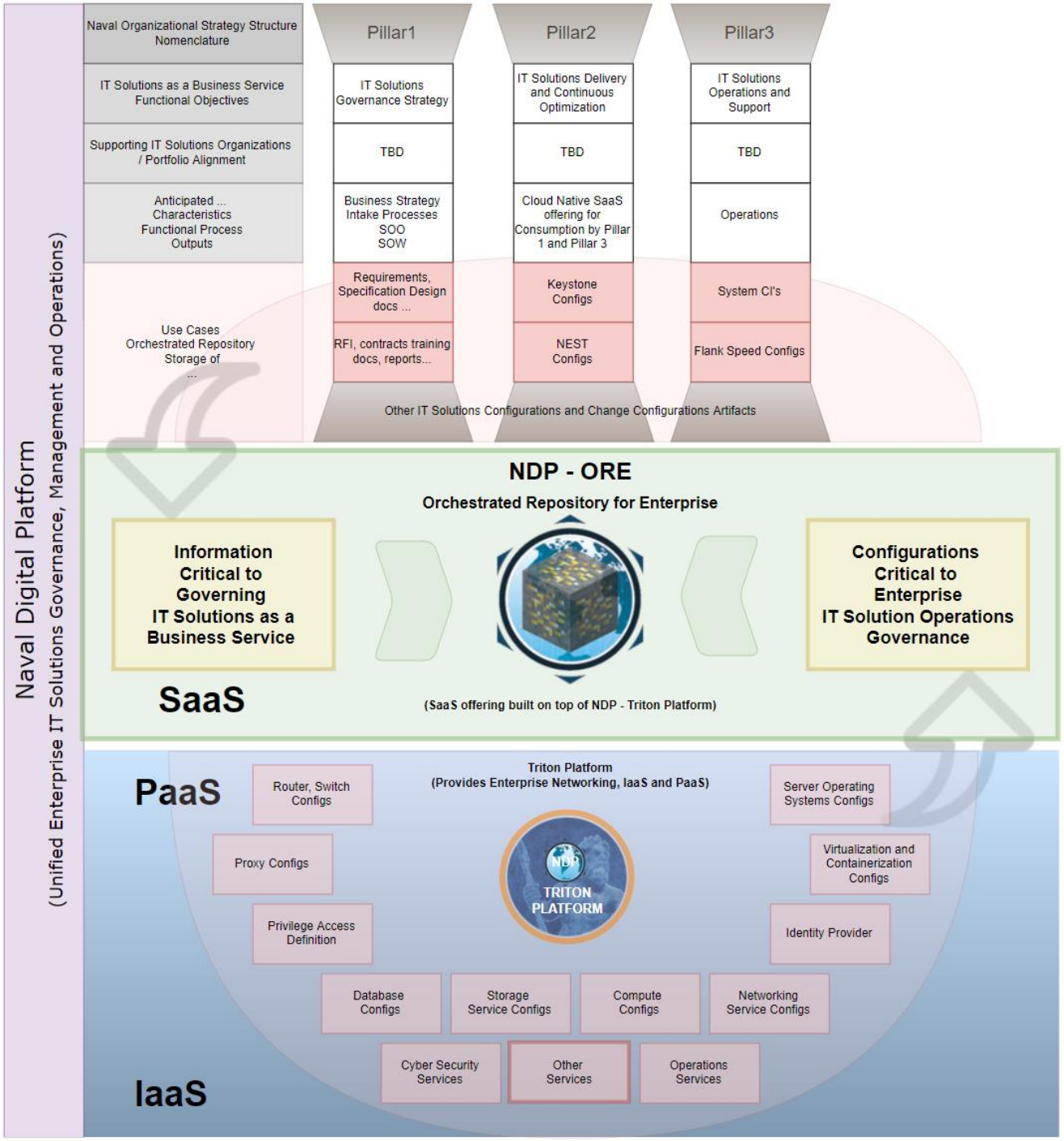
NDP ORE Use Cases, Governance, and NDP Platform Dependencies

13 July 2021

NDP-ORE: Bridging Current and Target State



Governance, Management and Operations



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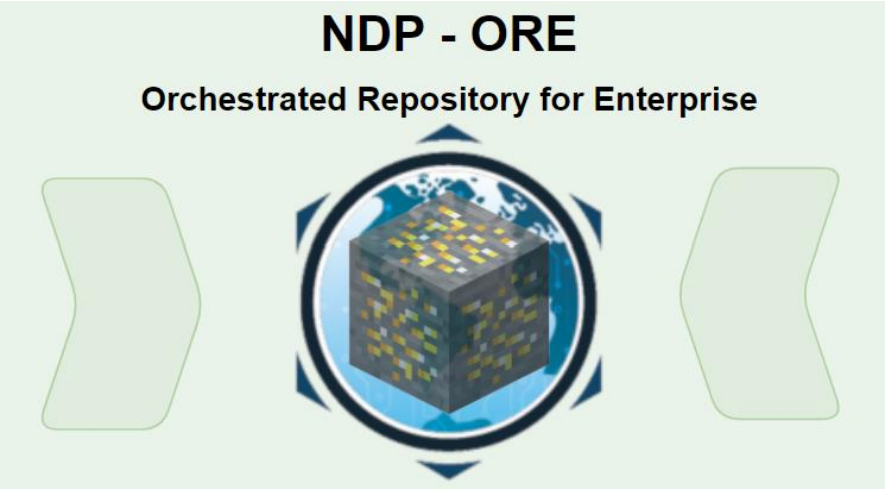
Document Repo Use Cases

Governance and Management

- Supporting companies, contractors, technologies, and people will come and go.
- Information critical to sustaining "Information Technology Solutions" from one generation to the next is essential.
- IT Solutions governance leadership needs tools, separate and independent from IT Solutions management provided service tools, since they will come and go.
- Enterprise organizations which can successfully govern IT Solutions turnovers and associated management has a greater chance to stay relevant
- NDP - ORE is a governance tool to strategically address these risks.

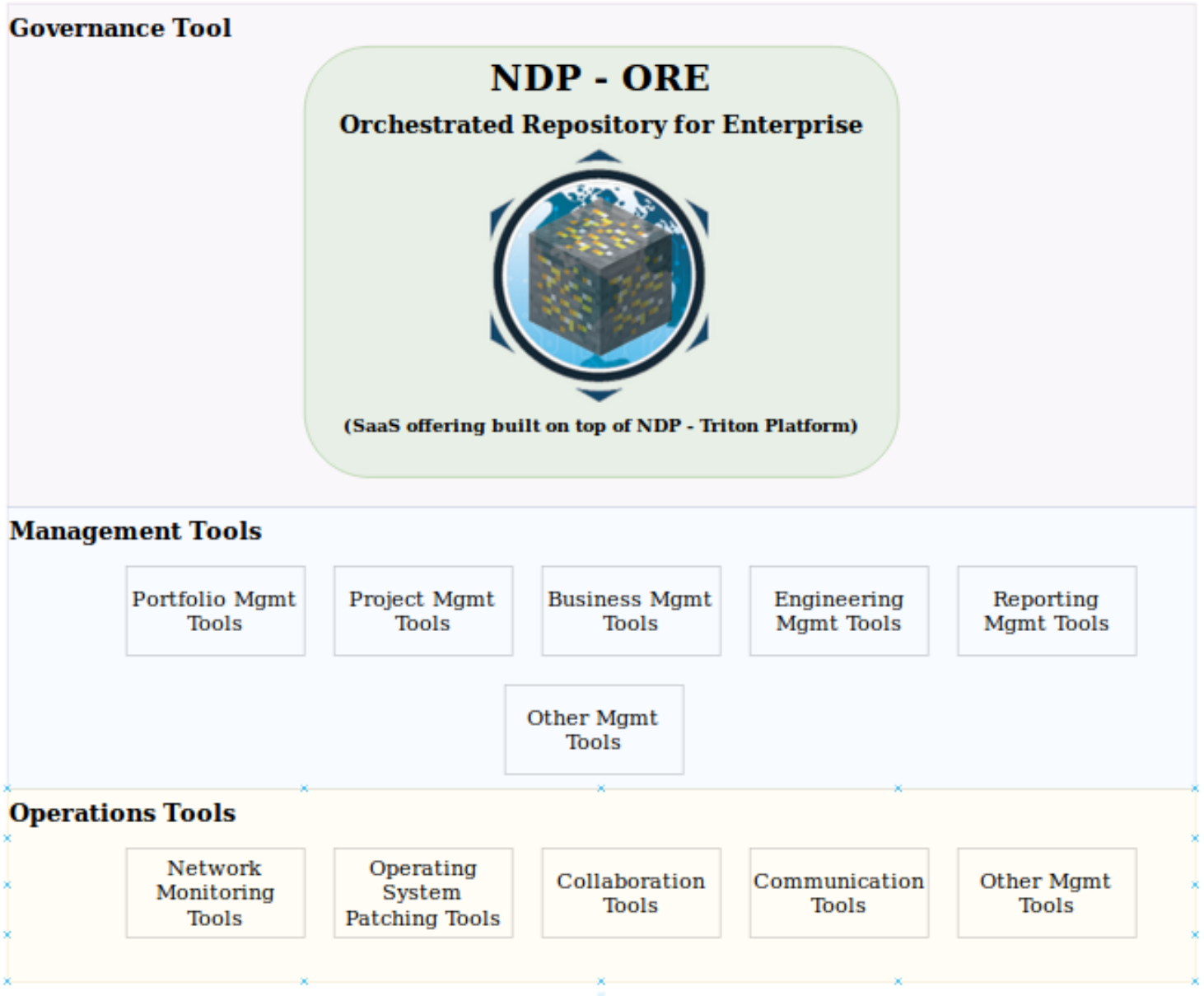


ore

1 : a naturally occurring mineral containing a valuable constituent (such as metal) for which it is mined and worked

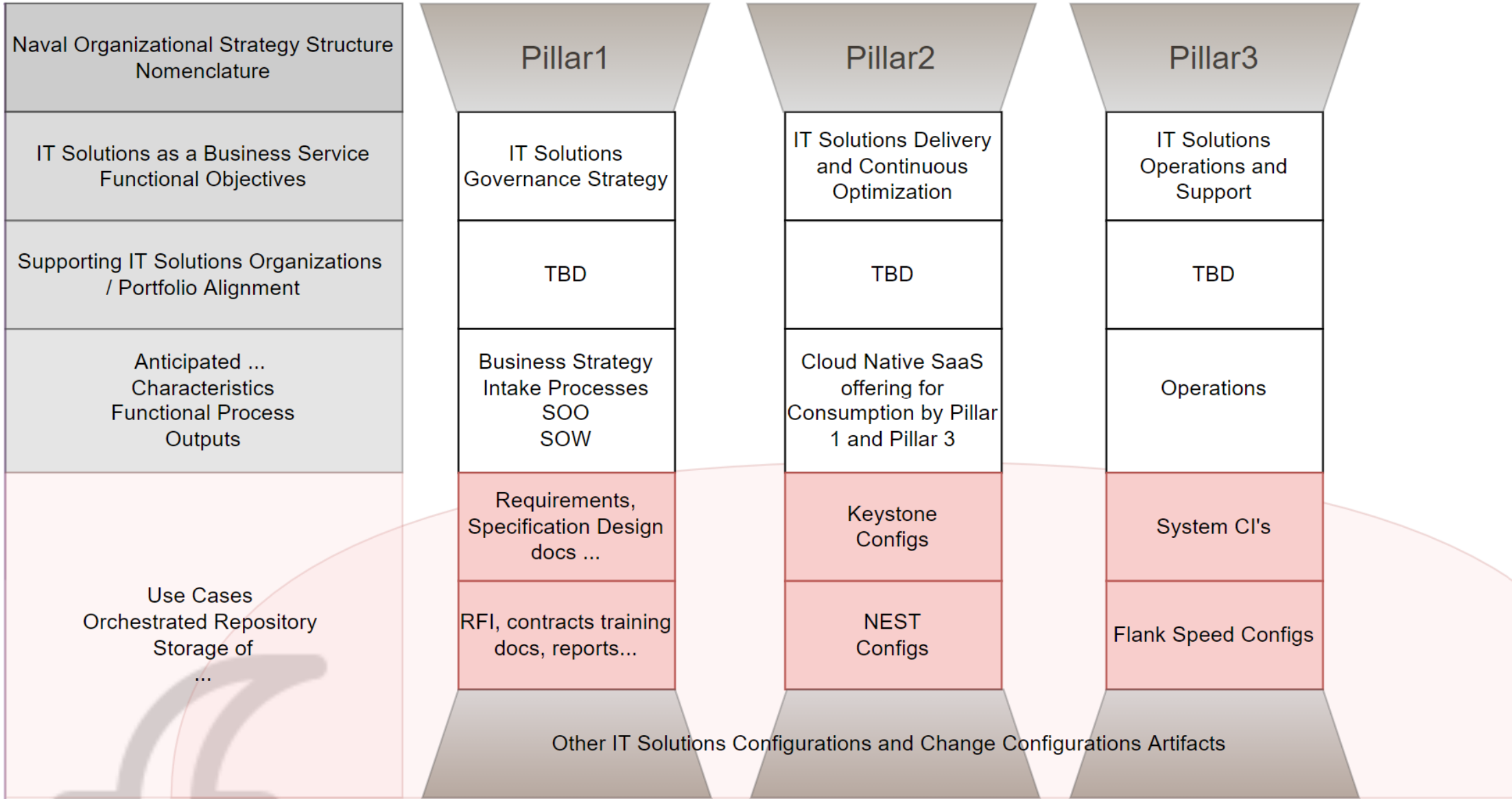
2 : a source from which valuable matter is extracted

Governance, Management, and Operations Tools

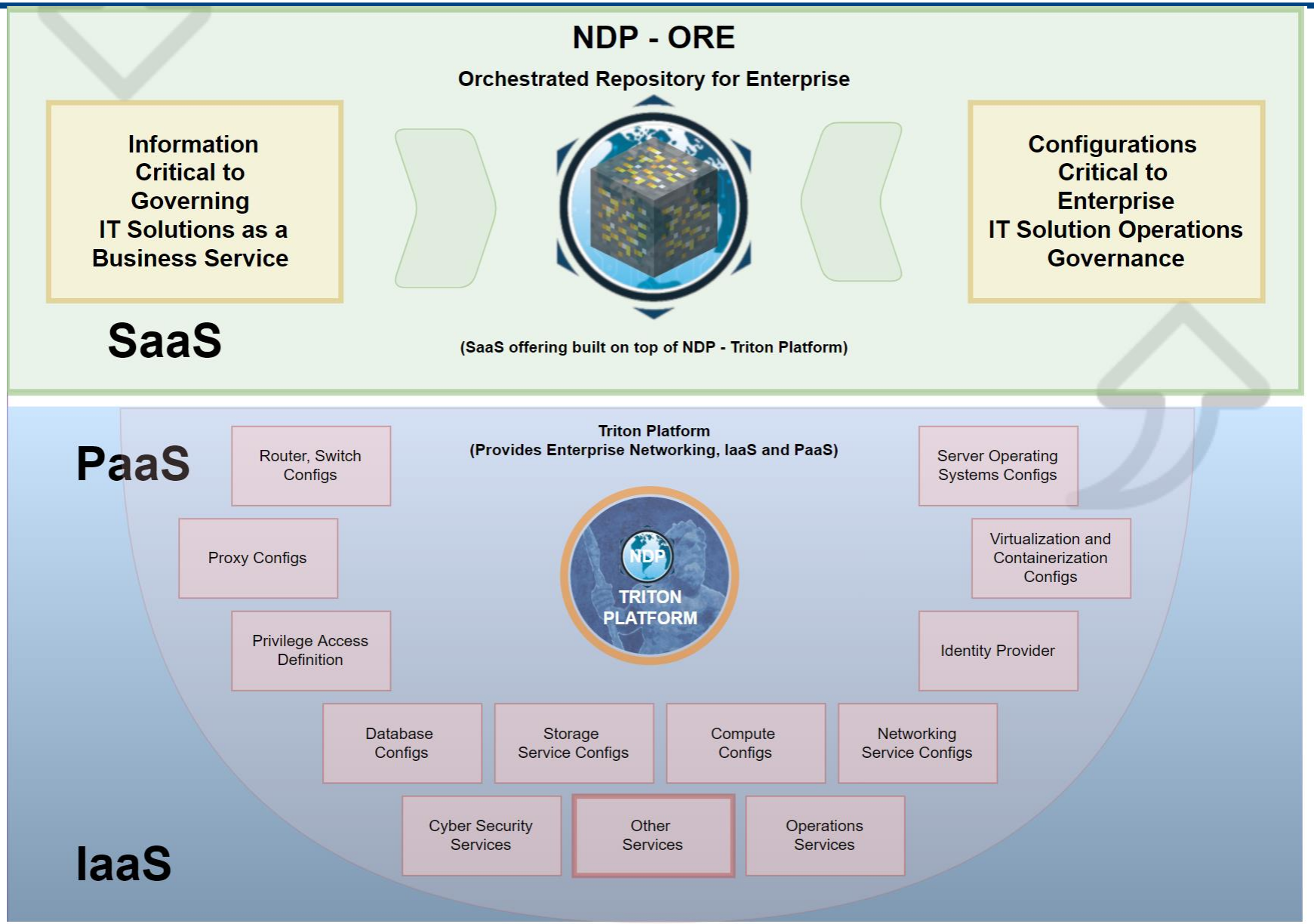


Governance, Management and Operations for **Stabilization, Transition, and Transformation**

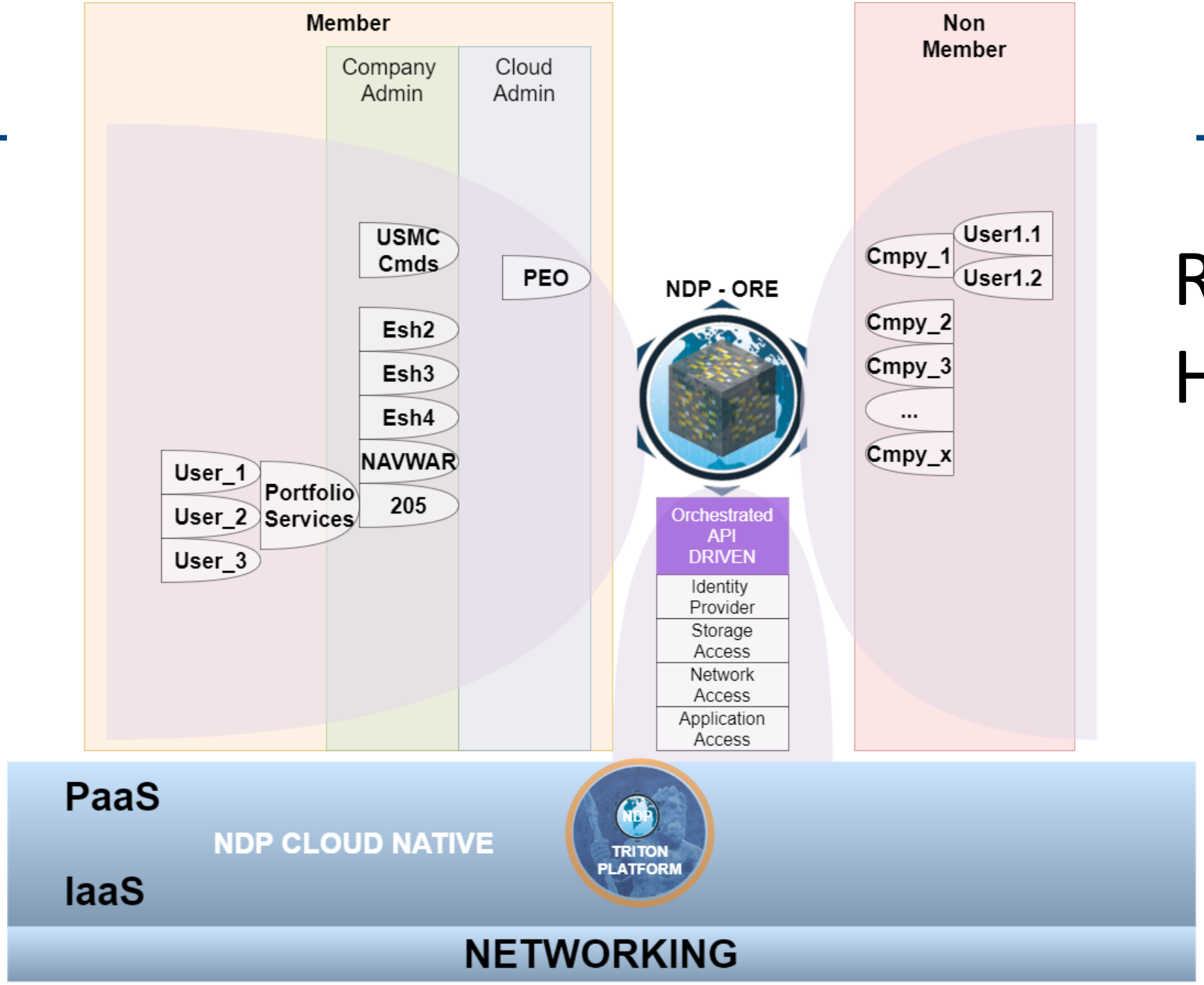
Strategy


Naval Organizational Strategy Structure Nomenclature
IT Solutions as a Business Service Functional Objectives
Supporting IT Solutions Organizations / Portfolio Alignment
Anticipated ... Characteristics Functional Process Outputs
Use Cases Orchestrated Repository Storage of ...
Pillar1
IT Solutions Governance Strategy
TBD
Business Strategy Intake Processes SOO SOW
Requirements, Specification Design docs ...
RFI, contracts training docs, reports...
Pillar2
IT Solutions Delivery and Continuous Optimization
TBD
Cloud Native SaaS offering for Consumption by Pillar 1 and Pillar 3
Keystone Configs
NEST Configs
Pillar3
IT Solutions Operations and Support
TBD
Operations
System CI's
Flank Speed Configs
Other IT Solutions Configurations and Change Configurations Artifacts

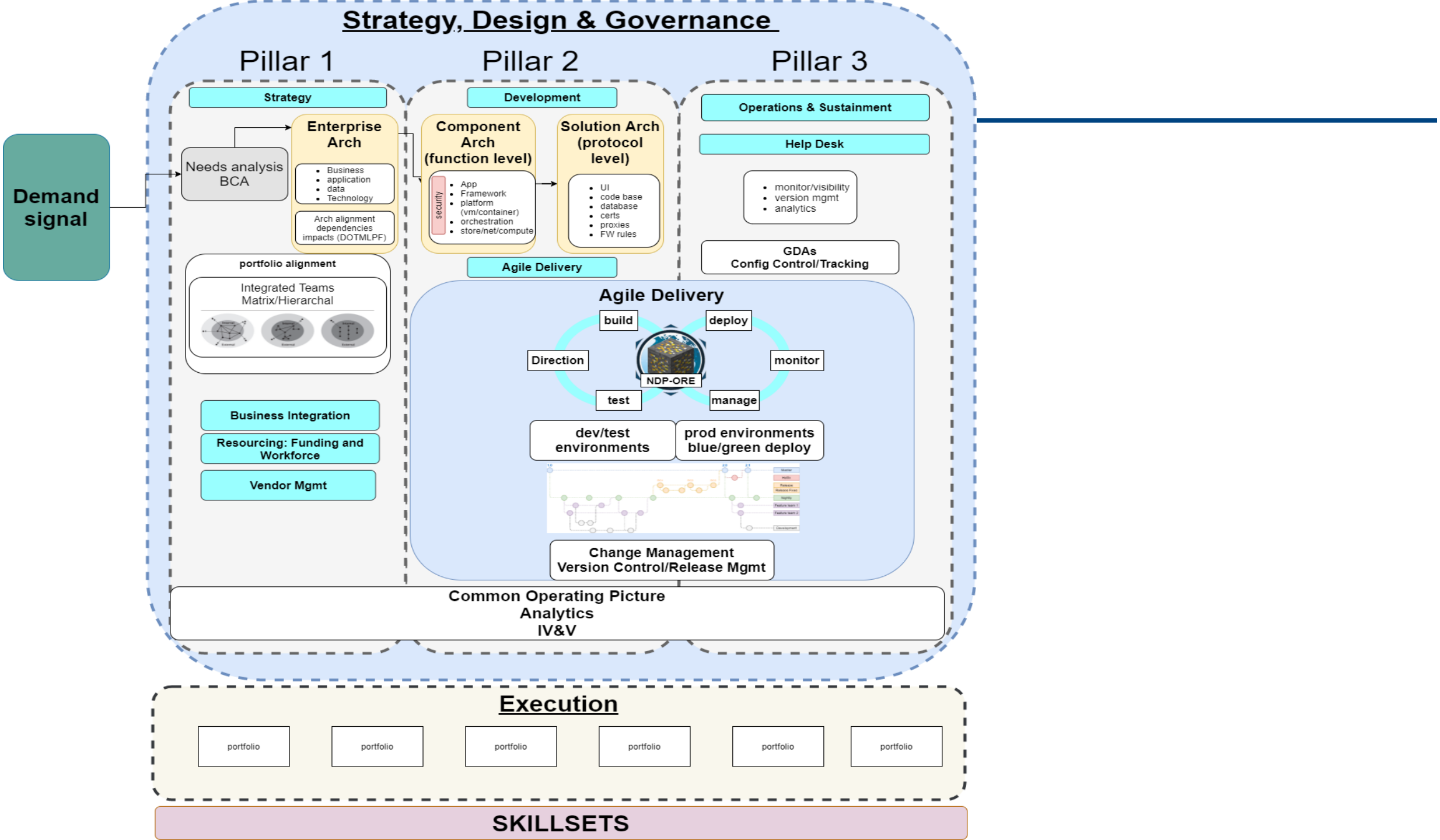
Operations – Platform and Application

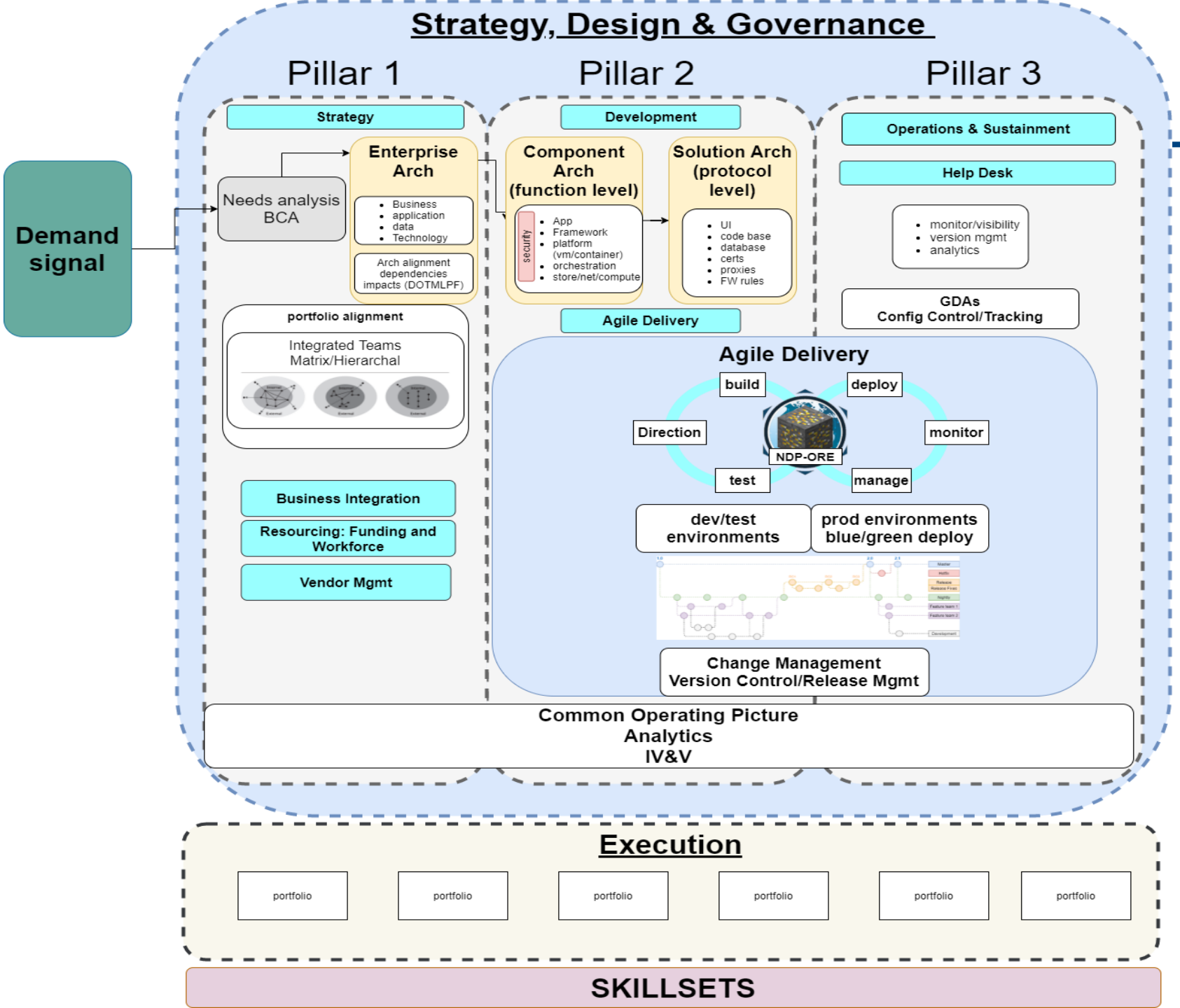


Roles and Hierarchy



Example Use Case: Architecture and Agile Development


Strategy, Design & Governance
Pillar 1
Pillar 2
Pillar 3
Demand signal
Strategy
Needs analysis BCA
Enterprise Arch
Business
application
data
Technology
Arch alignment dependencies impacts (DOTMLPF)
portfolio alignment
Integrated Teams Matrix/Hierarchal
Business Integration
Resourcing: Funding and Workforce
Vendor Mgmt
Development
Component Arch (function level)
security
App
Framework
platform (vm/container)
orchestration
store/net/compute
Solution Arch (protocol level)
UI
code base
database
certs
proxies
FW rules
Agile Delivery
Agile Delivery
build
deploy
Direction
monitor
NDP-ORE
test
manage
dev/test environments
prod environments blue/green deploy
Change Management
Version Control/Release Mgmt
Operations & Sustainment
Help Desk
monitor/visibility
version mgmt
analytics
GDAs
Config Control/Tracking
Common Operating Picture
Analytics
IV&V
Execution
portfolio
portfolio
portfolio
portfolio
portfolio
portfolio
SKILLSETS



SW driven Skillsets to support Digital Service Delivery

- Site Reliability Engineer
  - Must understand all major scripting syntaxes to ensure proper integration
- Computer Security Systems Specialist
- Network Engineer
- Information Assurance
- Capacity Management
  - Must understand storage/compute/networking and application designs for resourcing/licenses
- Enterprise Security Systems Engineer.
- Data Center Engineer

- Cloud Computing Systems Architect
- Lead Platform Software Developer
  - Must understand Linux and Windows OS, hypervisor and supervisor systems. Scale up and scale out system automation for elastic workloads
- Platform Applications Programmer
  - Must understand core enabling services integration and application design patterns
- Database Administrator
  - Must understand all major database schemes, including relational, nonrelational, graph, etc for proper integration of services
- Systems Administrator
- Help Desk Manager
  - Understand API integration for log analysis

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ORE Dependency: Cloud Native NDP Platform

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COMPLETE

OTA

COMPLETE

DEMONSTRATED PROTOTYPE

REFINED REQUIREMENTS

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ACQUISITION & SYSTEMS ENGINEERING VALIDATION

NAVWAR

NDP Orchestration Repo

NDP Orchestration Repo PRE-PRODUCTION

Secrets | Artifact | Document | Source Code | Image

Orchestrated Repo Ecosystem

Orchestrated Gateway

Cloud Native NDP Orchestration Repo

Accreditation of **Cloud Native** NDP Orchestration Repo

NAVWAR

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Navy Digital Platform

NDP Foundational Modernization

- Core Services
- Layer 2 and Layer 3

TENICA

NAVWAR

SMIT

Build NDP **Cloud Native** Platform

DESIGN, CONFIGURE, AND IMPLEMENT

Triton Platform

Navy Digital Platform | Host Infrastructure

Accredited Cloud Native NDP Orchestration Repo

Secrets | Artifact | Document | Source Code | Image

Orchestrated Repo Ecosystem

Orchestrated Gateway

Triton Platform

Navy Digital Platform | Host Infrastructure

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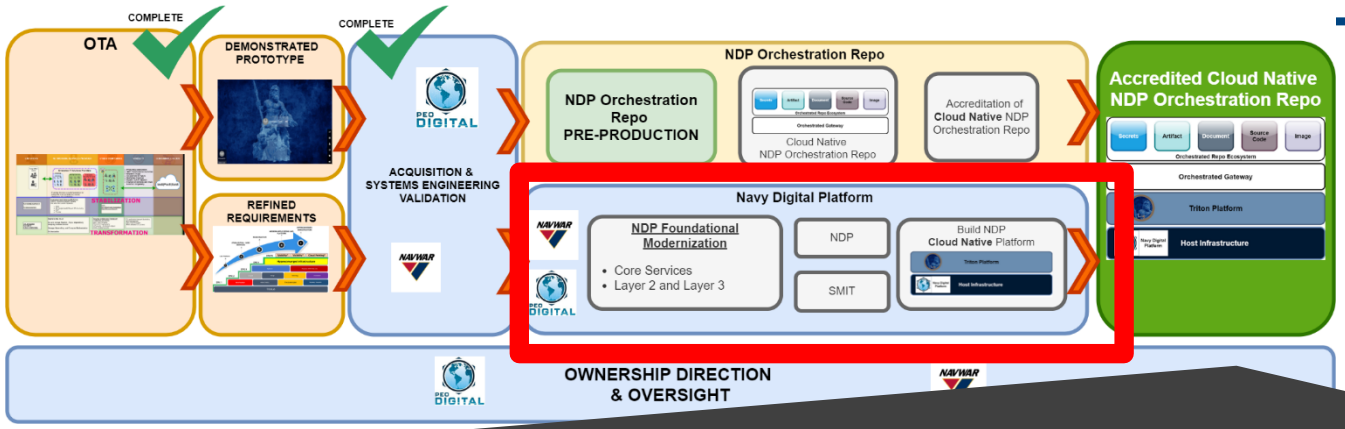
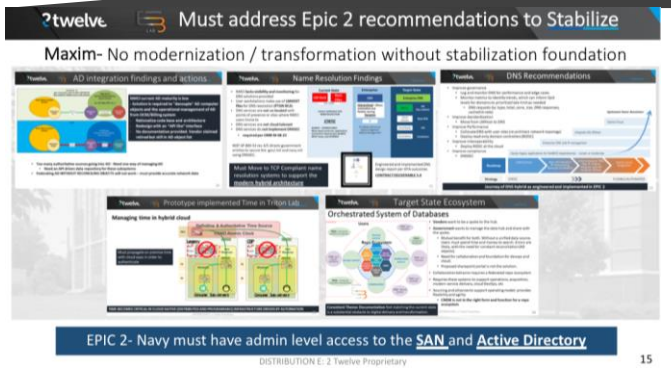
OWNERSHIP DIRECTION & OVERSIGHT

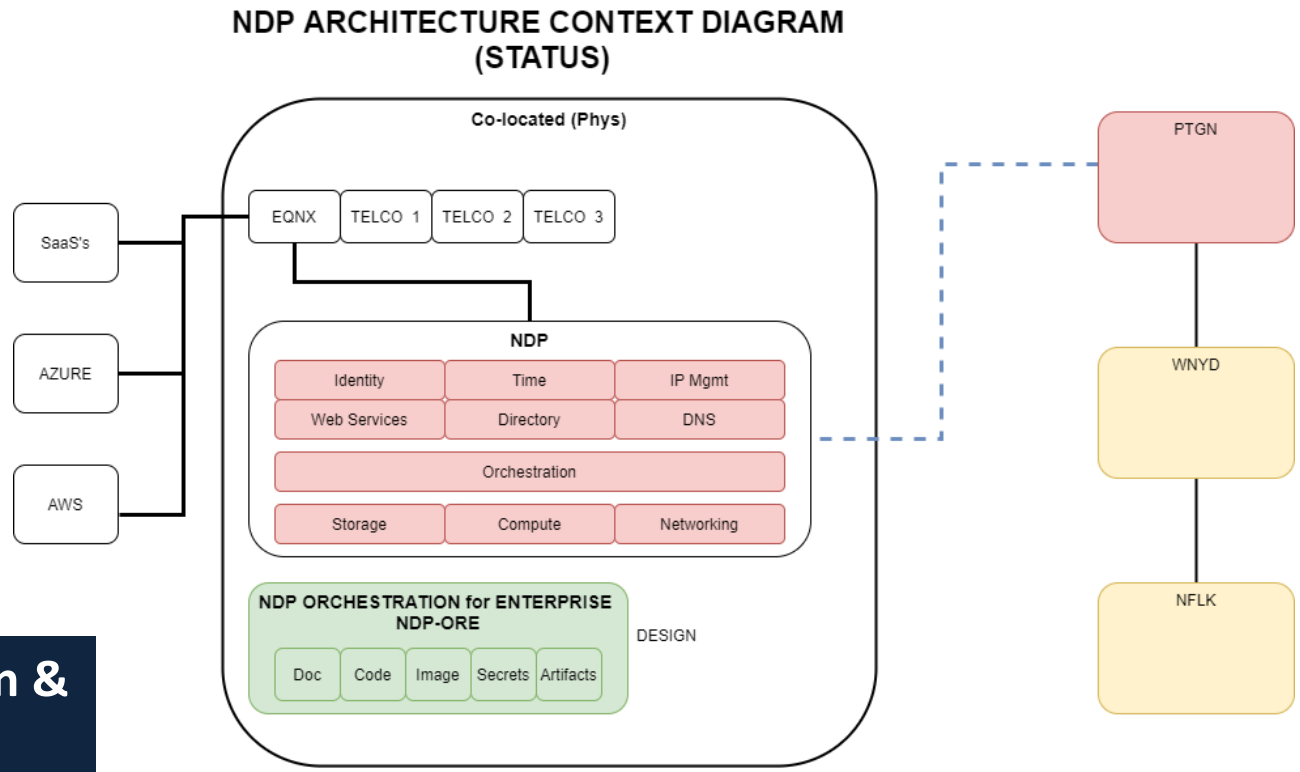
NAVWAR

NDP: Foundational Stabilization



- **SMIT/NDP must plan and provide roadmap to execute the provided Triton Platform design**
- **This is critical for the production enabling services required to support the cloud native orchestrated repo within Navy Security Boundaries**

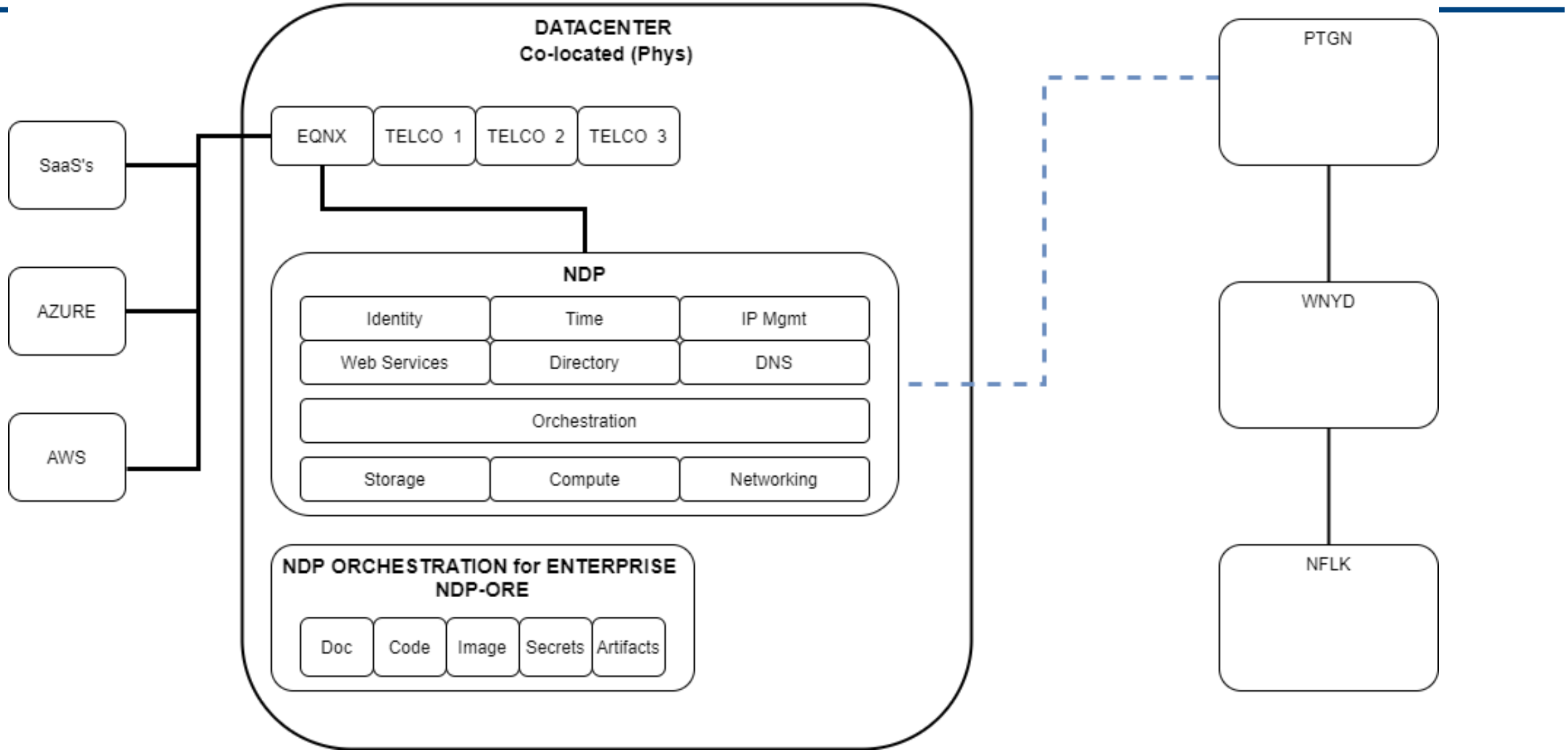




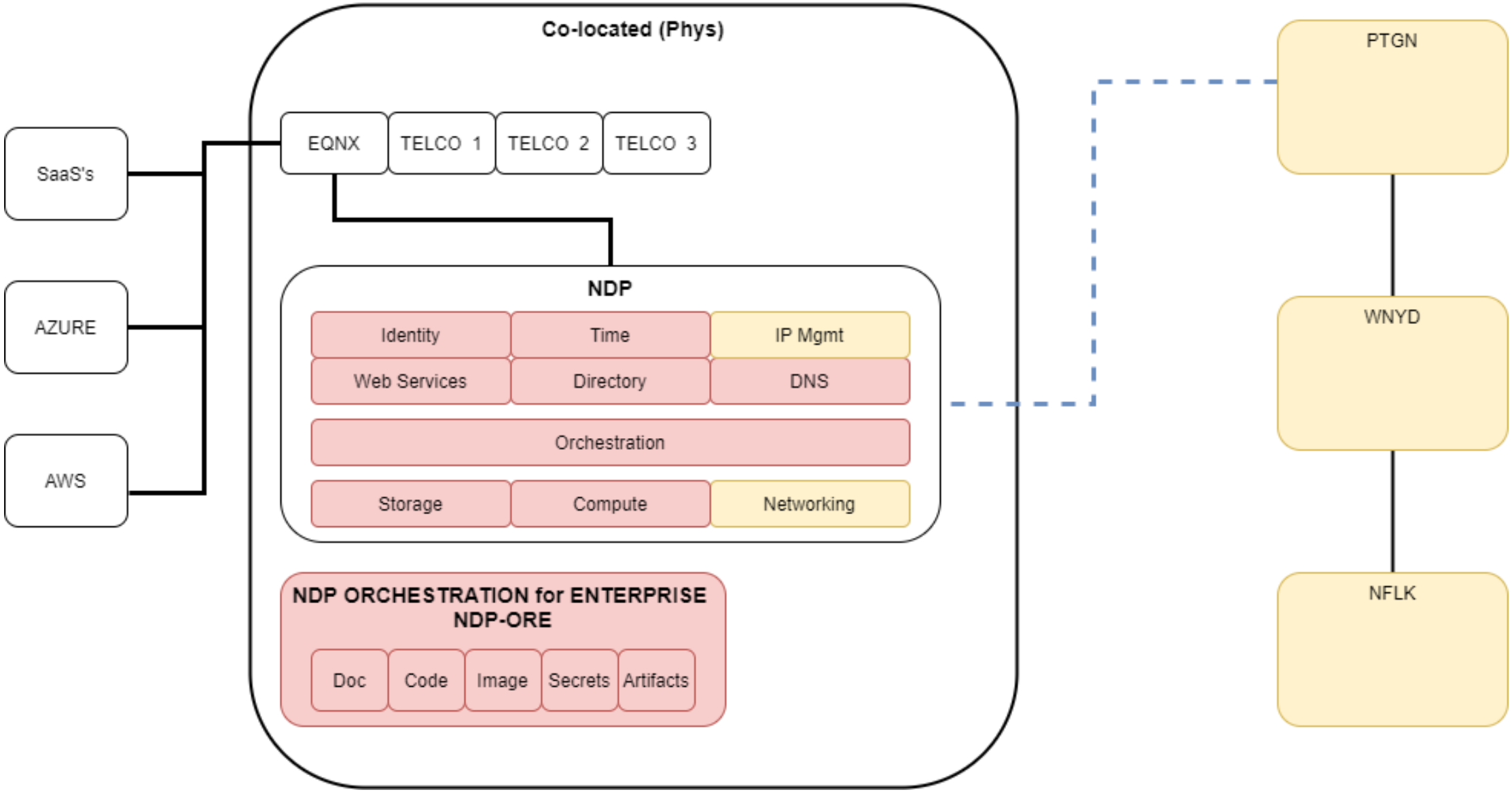
OTA delivered implemented design & Component Specs

NDP Physical and Design

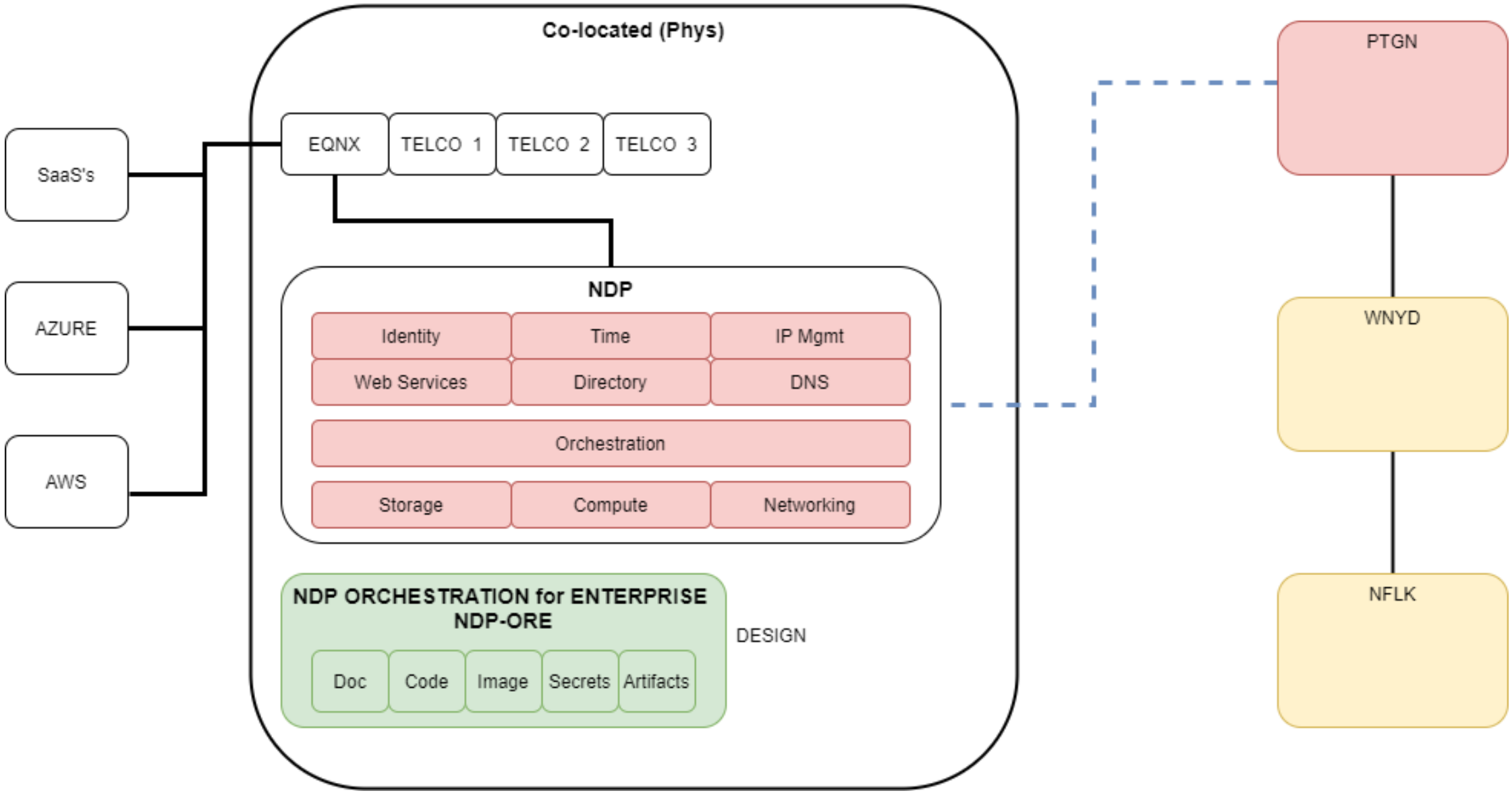
NDP PHYSICAL & LOGICAL CONTEXT DIAGRAM



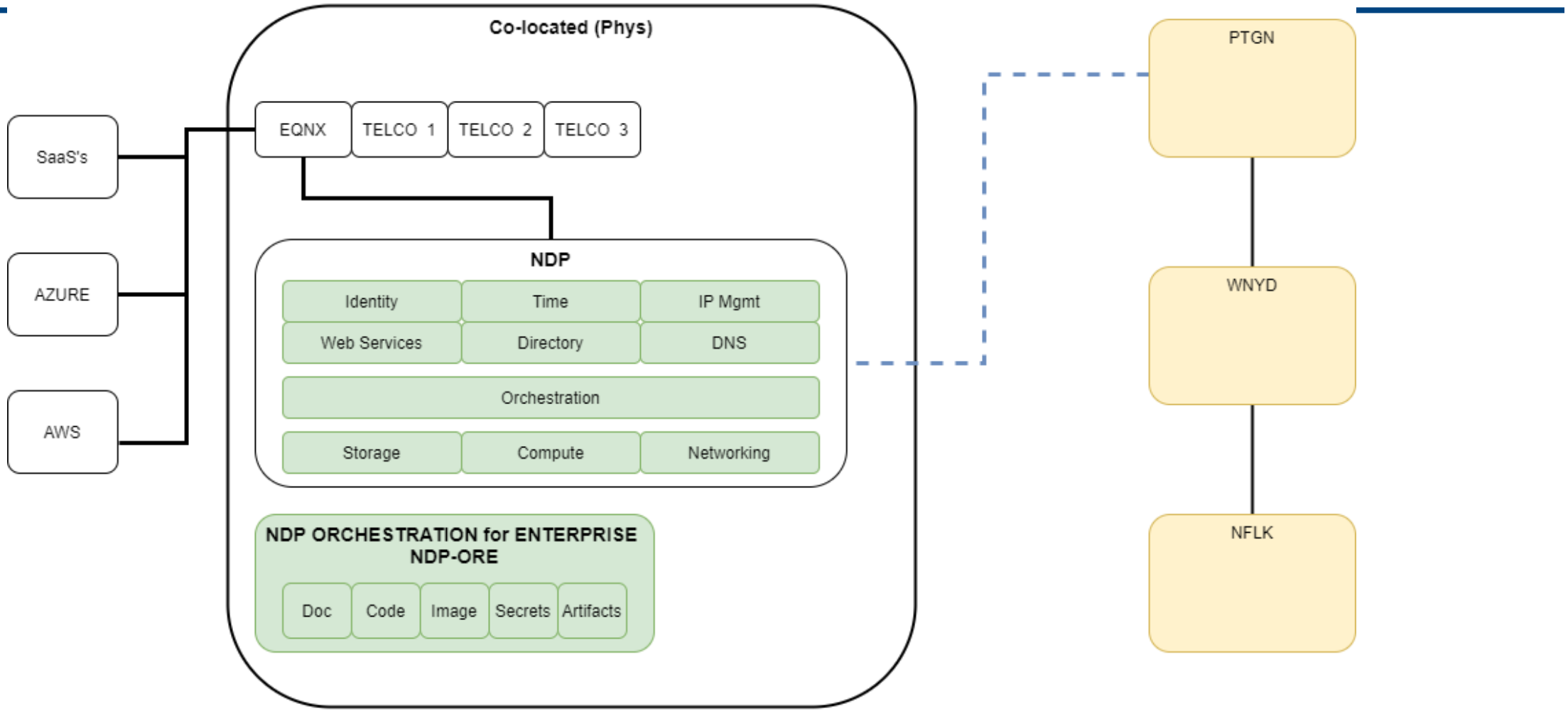
NDP PHYSICAL CONTEXT DIAGRAM (STATUS)



NDP ARCHITECTURE CONTEXT DIAGRAM (STATUS)



OTA LOGICAL CONTEXT DIAGRAM
(NDP DESIGN STATUS)



IMPLEMENTED AND READY FOR PRODUCTION
REQUIRES PLATFORM

- Next Steps

- Require NDP/SMIT Vendor/MCEN/MilCloud to provision environmental parameters to support application integration the following:
  - Networking
    - IP address hierarchy and mgmt.
    - LB/FW
    - Controller (SDN/SD-WAN)
    - Zero Trust Data in Transit
  - Storage
    - Fabric and partitioning design
  - Compute
    - Hypervisor/container mgmt
    - isolation
  - Enabling Services
    - DNS
    - NTP
    - Directory Services
    - Microservices plan

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Design and Component Specs	Configuration Implementation for Production	Hardware/SW Procurement
Storage -> delivered OTA Epic 3 & 4	SMIT	Reconcile storage with current procurements under SMIT, ONE-Net and MECH warehouse
Compute-> delivered OTA Epic 3 & 4	SMIT	Reconcile Compute with current procurements under SMIT, ONE-Net and MECH warehouse
Networking -> delivered OTA Epic 3 & 4	SMIT	Reconcile Networking with current procurements under SMIT, ONE-Net and MECH warehouse
DNS -> delivered OTA Epic 3 & 4	SMIT	
NTP -> delivered OTA Epic 3 & 4	SMIT	
Identity -> delivered OTA Epic 3 & 4	SMIT	

CLOUD MATURITY THRESHOLDS/SPECS

	INTOLERANT	TOLERANT	READY	NATIVE
COMPUTE 	**NONSTANDARD HARDWARE, HYPERVISORS**	STANDARDIZE • HARDWARE • HYPERVISORS • MODERN OS	• APPLICATION ISOLATION • KERNEL COMPUTE POLICY • SEMI AUTO IAAS	• ZERO TRUST DATA IN PROCESS • FULL AUTO IAAS • CONTAINER • MICROSERVICES
NETWORKING 	**NONSTANDARD L1 AND L2 HARDWARE, SILOED CORE SERVICES**	STANDARDIZE • L1 AND L2 HARDWARE • ENTERPRISE CORE SERVICES	• API DRIVEN NETWORKS • PKI, TRAFFIC ANALYSIS • FLATTEN NETWORK • TENANT ISOLATION	• ZERO TRUST DATA IN TRANSIT • L2-7 AS SOFTWARE • SIDECAR SECURITY DATA COLLECTION • IPV6
STORAGE 	**NONSTANDARD HARDWARE, PROTOCOLS, DATABASES**	STANDARDIZE: • STORAGE FABRIC • RATIONALIZE DATA (EPHEMERAL/PERSISTENT) • OBJECT, FILE, BLOCK STORAGE • PERF RQTS FOR SSD, PLATTER, ARCHIVE	• API DRIVEN STRAGE • ROBUST STORAGE PAAS OVER ETHERNET • FIBER FOR CUSTOM • METADATA TAGS	• ZERO TRUST DATA AT REST • NATIVE ENTERPRISE SCALABILITY • EVENTUAL TO HIGH CONSISTENCY • PARTITION TOLERANCE • STREAMING
APPLICATION 	**NONSTANDARD SERVICES, MANUAL OPERATIONS**	STANDARDIZE SOFTWARE FOR • ENGINEERING, • DEV, STAGING, CYBER, OPS • GOVERNANCE	• API DRIVEN SOFTWARE • SERVICE MESH • EVENTUAL TO HIGH CONSISTENCY • PARTITION TOLERANCE • DR/HA • STREAMING	• ZERO TRUST CODE AT SOURCE • NATIVE ELASTICITY/SCALABILITY • EVENTUAL TO HIGH CONSISTENCY • ON DEMAND SELF SERVICE • MEASURED SERVICE

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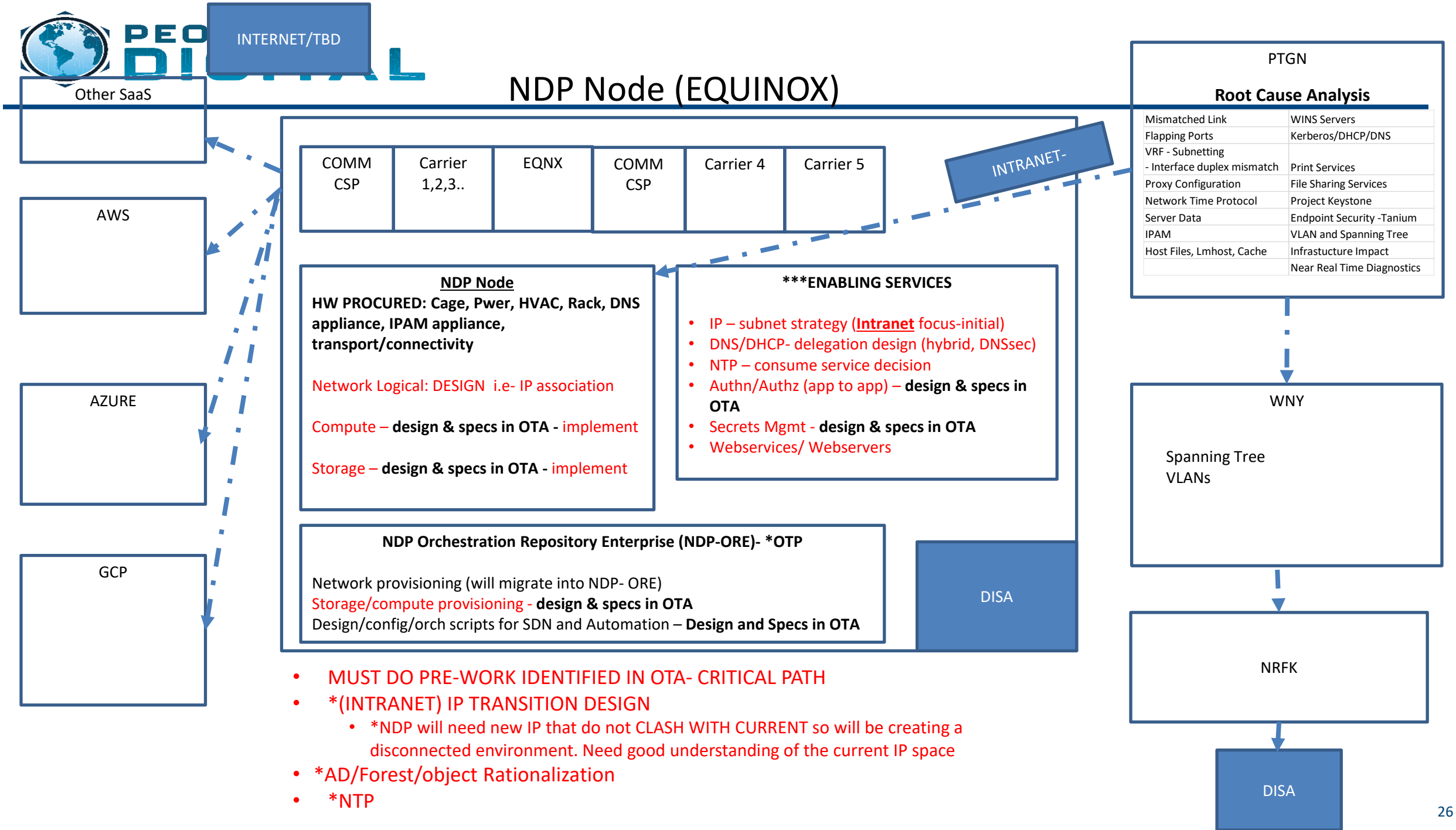
- BACKUP

NDP Node (EQUINOX)



- MUST DO PRE-WORK IDENTIFIED IN OTA- CRITICAL PATH
- *(INTRANET) IP TRANSITION DESIGN
  - *NDP will need new IP that do not CLASH WITH CURRENT so will be creating a disconnected environment. Need good understanding of the current IP space
- *AD/Forest/object Rationalization
- *NTP

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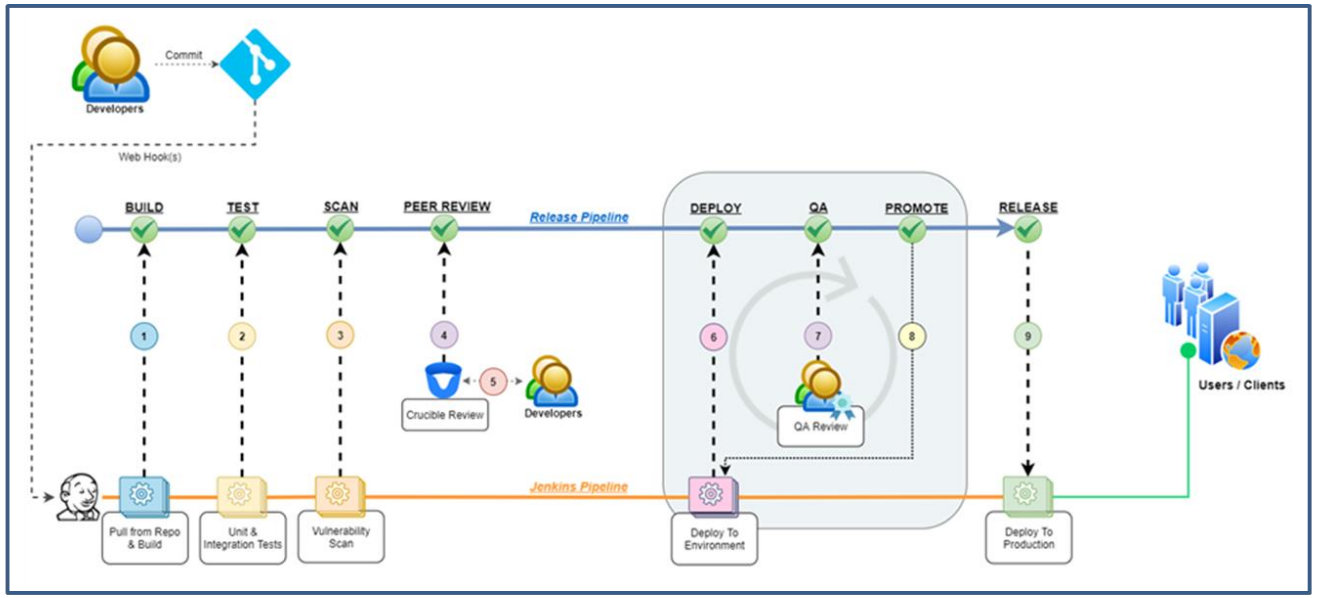
Networking				Compute				Storage			
	Design	HW procurement	PTGN/OTA design and spec		Design	HW procurement	PTGN/OTA design and spec		Design	HW procurement	PTGN/OTA design and spec
physical				**physical**				**physical**			
location	planned	x		server CPU/GPU/RAM	TBD		x	SSD, etc	TBD		x
switch devices	planned	x		end user devices	EUHW vendor	x		area connections, Filers (SAN)	TBD		x
router devices	planned	x									
power/heat/cool	planned	x									
cabling	planned	x									
IP/DNS/DHCP device	planned	x									
NTP/PTP device/application	planned	x									
logical				**logical**				**logical**			
IP subnetting structure	TBD		x	hypervisor/isolation	TBD		x	storage architecture	TBD		x
IP mgmt	TBD		x	Trusted Platform Module	TBD		x	storage type (object, etc)	TBD		x
DNS naming service structure	TBD		x	OS image	project keystone		x	persistence	TBD		x
NTP arch	TBD		x	orchestration	TBD		x	file system	TBD		x
directory services (AD/LDAP) object cleanup	TBD		x	runtime, frameworks	TBD		x	protocols	TBD		x
networking orchestration	planned		x	container mgmt	TBD		x	encryption	TBD		x
proxies	TBD		x	microservices	TBD		x				
cert authority/key rotation	TBD		x								
monitoring/visibility	TBD		x								

Digital Services Delivery

Pillar 1
Demand Signal



Pillar 3

Pillar 2 Delivery Pipeline (API driven services)

SW driven Skillsets to support Digital Service Delivery

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