

JUL Solution Design - Draft





Key challenges

Governments might lack the capability to standardize documents and procedures among various agencies & to establish new protocols for implementing & managing a single window (SW) system. Existing frameworks for inter-agency information sharing at the national level may be absent. Insufficient ICT capacity can hinder the effective deployment of the SW system, complicating the integration of border agencies & the smooth exchange of data.

Current Single Window Environment Maturity

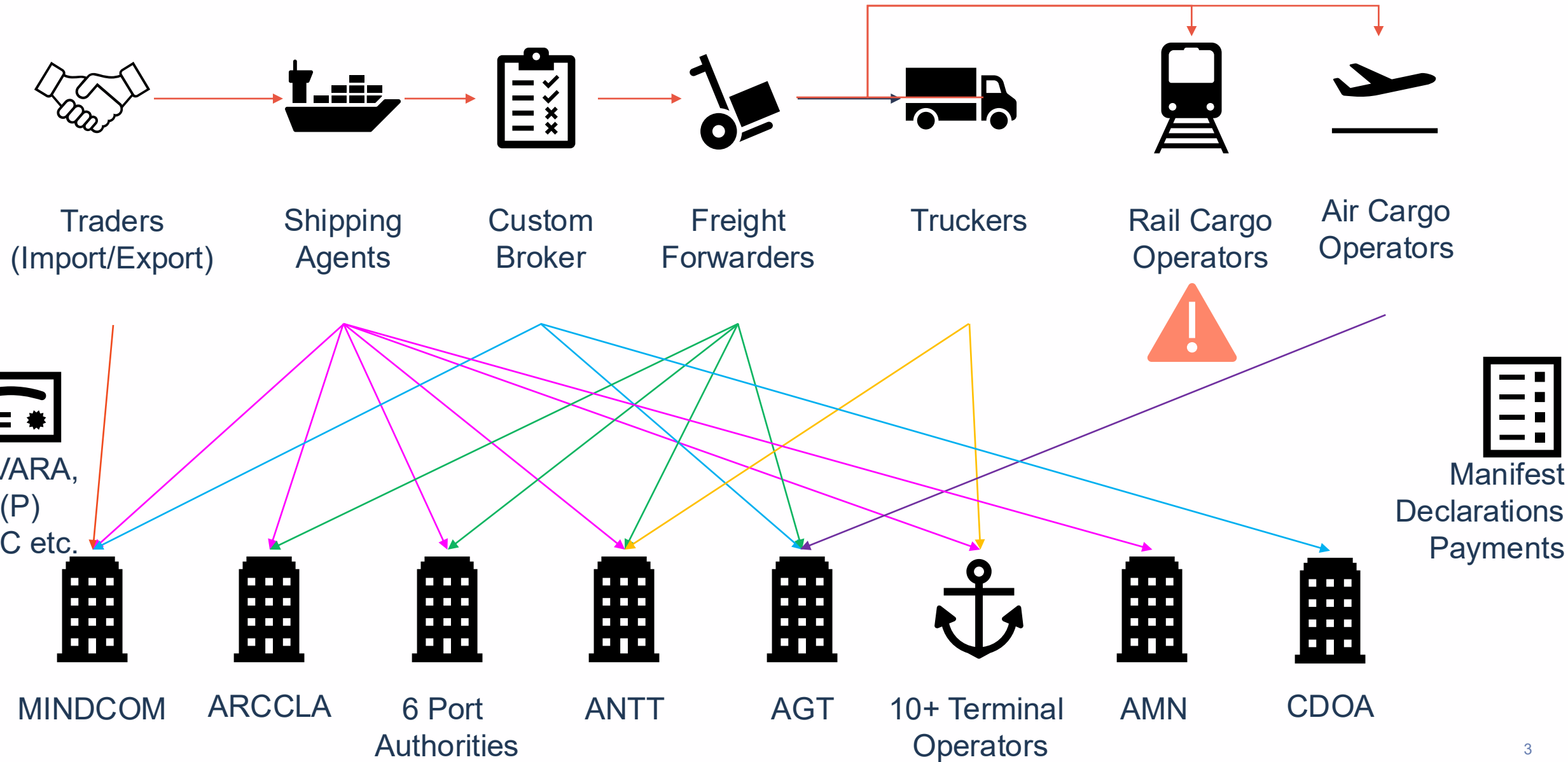
Early stages of implementation:

1. JUP in-progress,
2. ASYCUDA in-progress
3. JUL to start

How to build a SW - UN/CEFACT Recommendation no .33

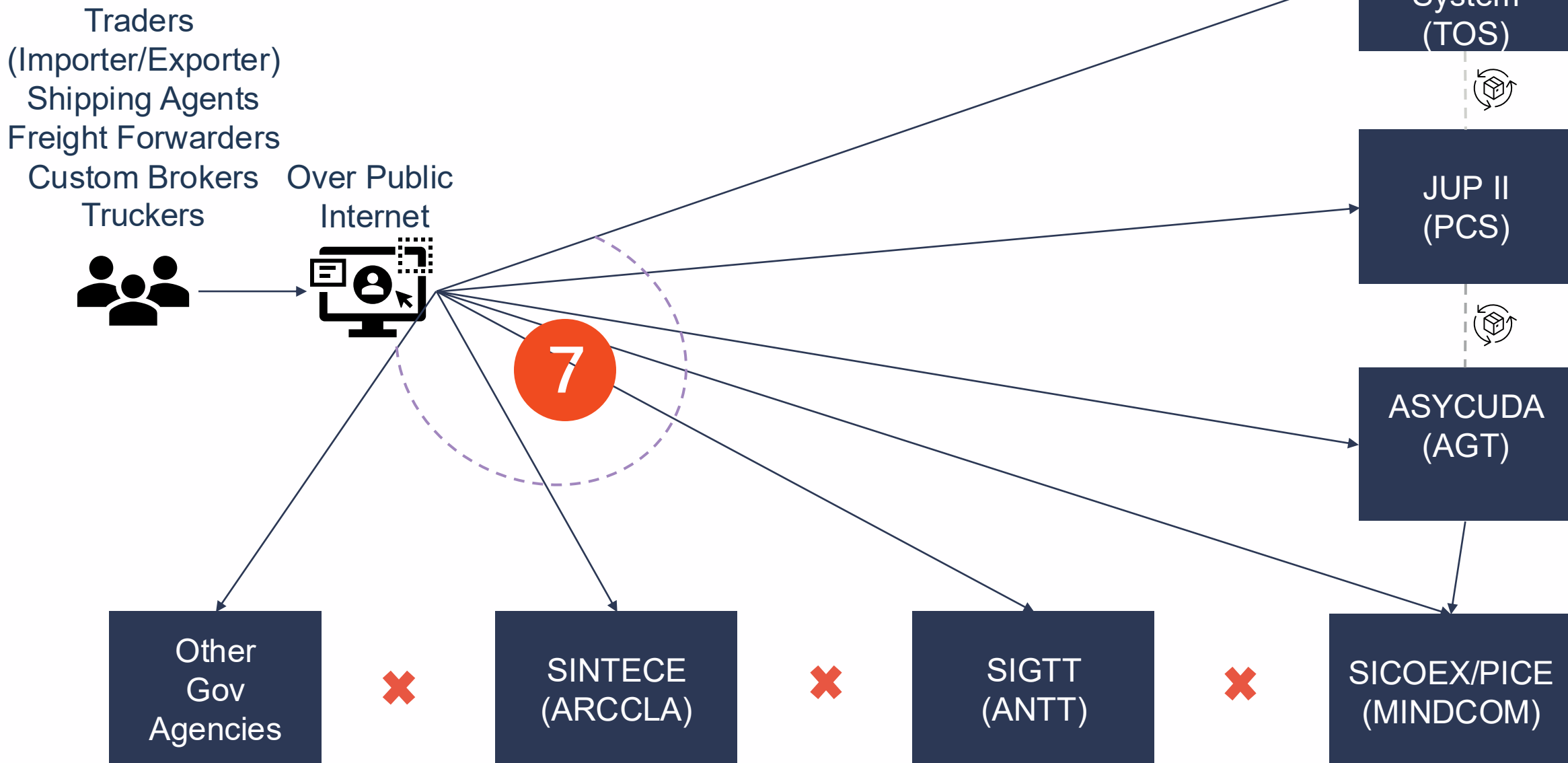
1. JUL Technical Working Group consisting of ARCCLA, Port Authority, MINDCOM, AGT
2. JUL Technical Working Group engaging with private/public Agencies / Associations
3. Sample BPA and UMM for JUL will be documented using Swim Lane diagrams
4. JUL will use WCO Data Model, UN/EDIFACT, IATA Cargo-XML, and IMO FAL
5. JUL will have 3 Phased implementation
6. JUL will use best practices in ICT, Change Management, Communication & Continuous Improvement
7. JUL will have an Interoperable architect

Current State of Integration

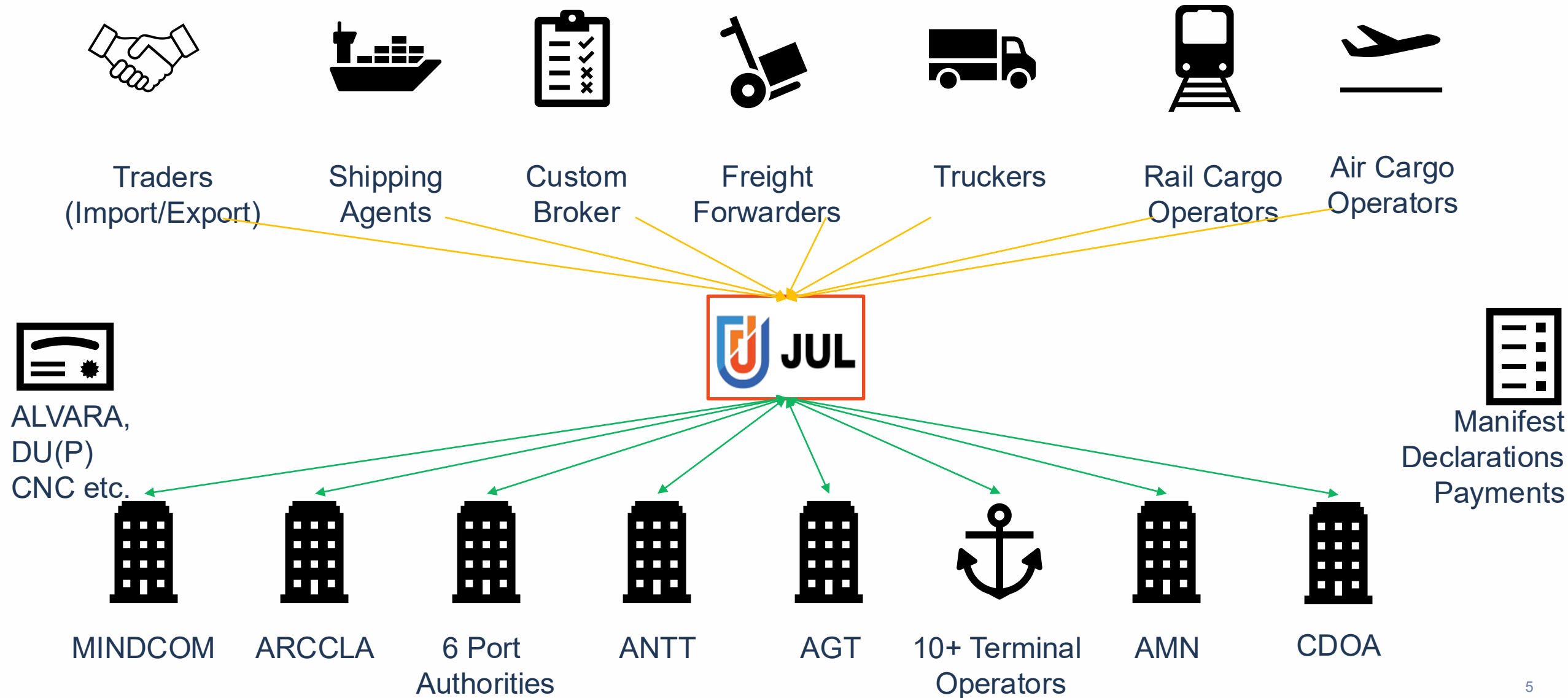




Current state of System Integration



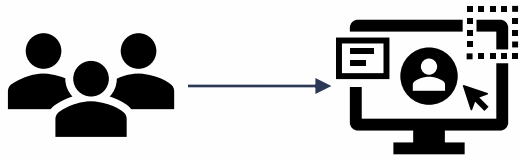
Target State of Integration





Target System Integration

Traders
(Importer/Exporter)
Shipping Agents
Freight Forwarders
Custom Brokers
Truckers



Public
Internet



SSO
OpenID, SAML
JWT

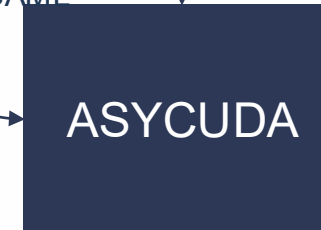
API/JSON/EDI



API/JSON/EDI

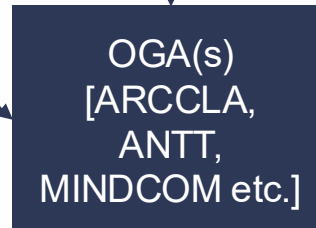


API/SOAP/WS
XML/JSON/EDI



SSO
OpenID, SAML
JWT

API/JSON



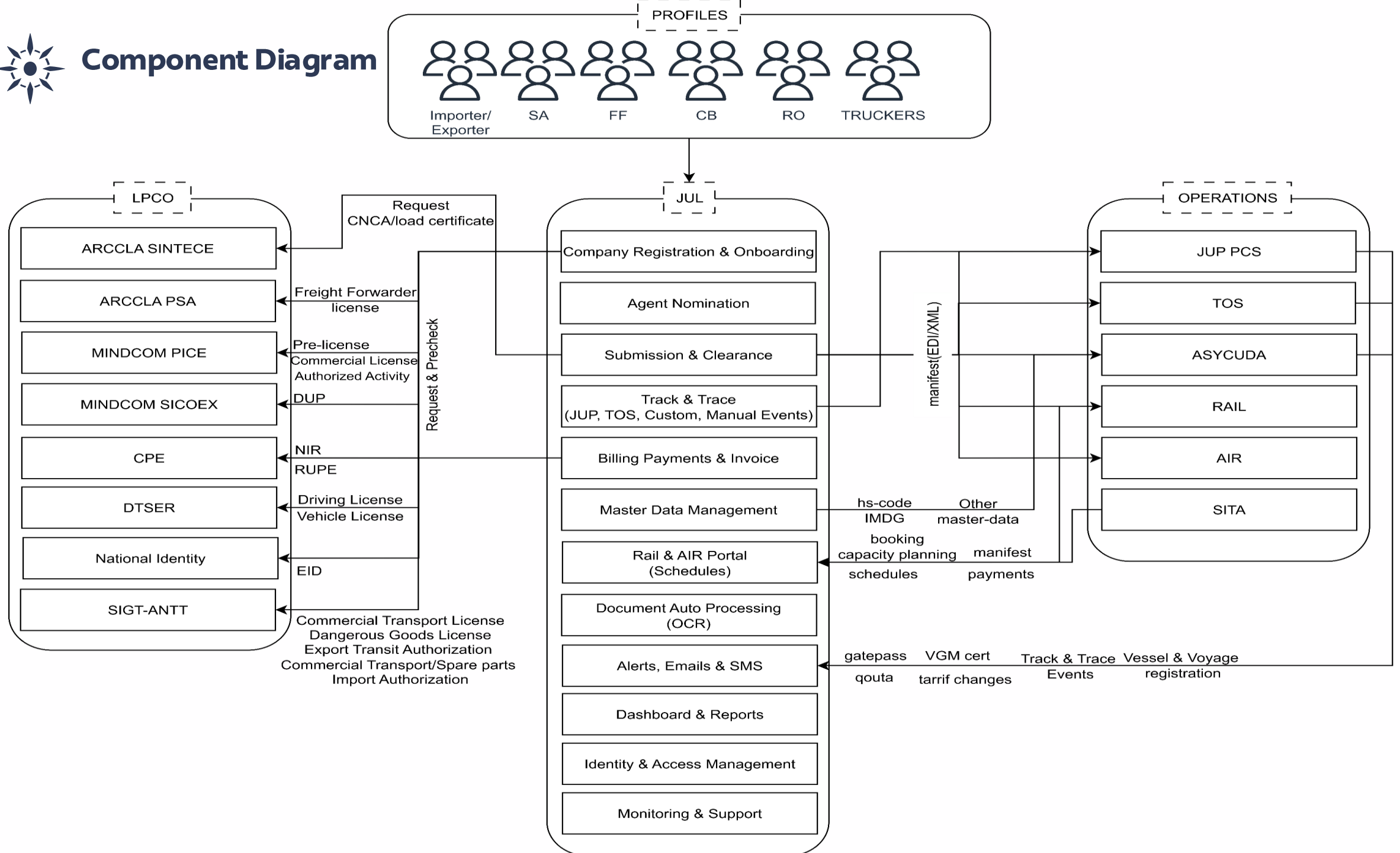
Integration with
other systems via public
Internet or VPN



Integration Control
Document (ICD) from
MINDCOM, JUP & AGT



Component Diagram





JUL Profiles Phase 1

JUL will enable these profiles to have a streamlined and digitized interactions among various government agencies, logistic providers and traders, ensuring efficient, transparent and complaint trade operations.



Primary Role & Key Functions

Submit trade documents, licenses, and declarations.
Import/export license application, shipment status, customs documents.

**Import
Exporter**



Primary Role & Key Functions

Represents vessel operators and carriers at ports. (AANA)
Vessel arrival notice, manifest submission, berth requests, FAL forms, EDI cargo data.

**Shipping
Agent**



Primary Role & Key Functions

Consolidate shipments, manage logistics across modes.(ATLA)
House Bill of Lading, cargo tracking, customs pre-declarations.

**Freight
Forwarder**



Primary Role & Key Functions

Submit customs declarations, duty payments, and clearance docs. (CDOA)
Customs declaration, tariff lookup, duty assessment.

**Custom
Broker**



Primary Role & Key Functions

Manage inland cargo movement.
Train schedules, wagon manifest, gate-in/out reporting.

**Rail
Operator**



Primary Role & Key Functions

Handle cargo delivery, port gate movements
Gate passes, cargo pickup/drop-off notifications.

Trucker



Primary Role & Key Functions

JUL System Administrator & Support
Provide Support & Guidance on JUL to all stakeholders

**JUL
Operator**



JUL Modules Phase 1

The modules scoped for phase 1 will ensure the JUL web portal provides multi-language support and implement a state-machine architecture ensuring one time submission of data going through multiple integration state changes. It will also allow incremental data update and amendment.

Company Registration & Onboarding

License & Permits

Agent Nomination

Track & Trace

Billing, Payments & Invoice

Master Data Management
(HS-CODE, IMDG)

Dashboards & Reports

Rail Portal

(Schedules, Tarrifs, Payments)

Alerts

(Ministry Qoutas, Tarrif Changes)

Identity & Access Management

Monitoring & Support



JUL Integrations Phase 1



mintrans.gov.ao
PORTAL OFICIAL



JUP II



PORTALUL
SERVICIILOR
PUBICE



mindcom.gov.ao
PORTAL OFICIAL

PICE



SICOEX



minfin.gov.ao
Ministério das Finanças



ASYCUDA
Automated System for Customs Data

ORACLE
SOA Suite

CPE/RUPE



minint.gov.ao
PORTAL OFICIAL



DTSER
Direcção de Trânsito
e Segurança Rodoviária



minjusdh.gov.ao
PORTAL OFICIAL

HID
National Identity





System Design Phase 1

Web Browser



DevOps / Support

VPN

SECURITY

Perimeter Firewall/IDS/IPS

WAF / Security Gateway

Internal Firewall/Segmentation Gateway

Database Firewall

Identity & Access Management

SIEM/ Security Analysis

WEB & APP

External LB (SSL Termination)

API Gateway (SSL Termination)

BPM / Orchestration

Web Servers (NGINX/Apache)

Application Servers (Java/.NET)

ESB / Message Broker



Primary DB Cluster (Postgres)

INTEGRATION

API

SOAP

JSON

EDI

XML

ERP

CRM

MONITORING & SUPPORT

Bastion Host / Jump Server

Alert Manager / Incident Response

Configuration Mgmt / Automation

Log Aggregation (ELK)

Prometheus / Grafana

DATA

Data Warehouse / Analytics

Backup Appliance / NAS

EXTERNAL

JUP

ASYCUDA

SINTECE

PICE

SICOEX

OTHER OGA(s)

TOS

DTSER

CPE

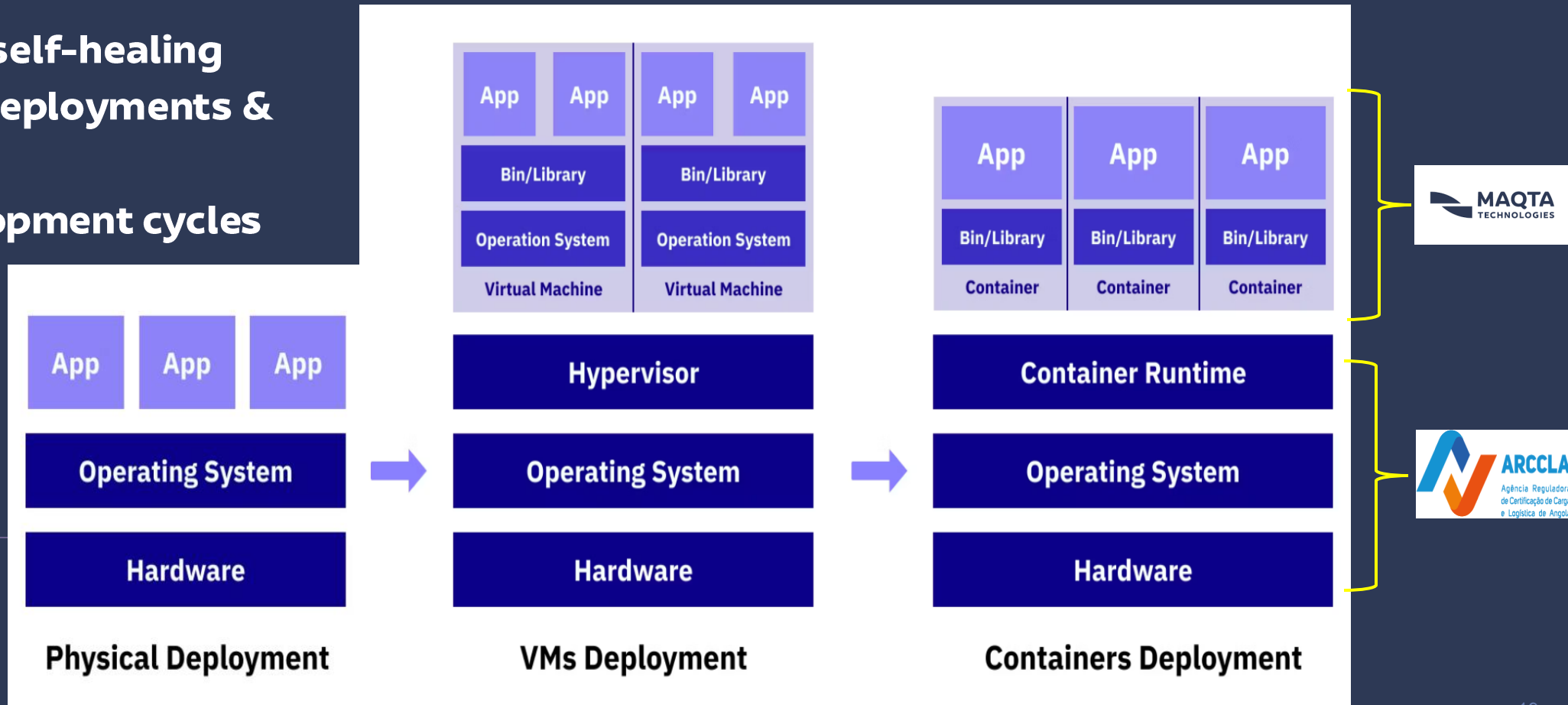
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BANKS

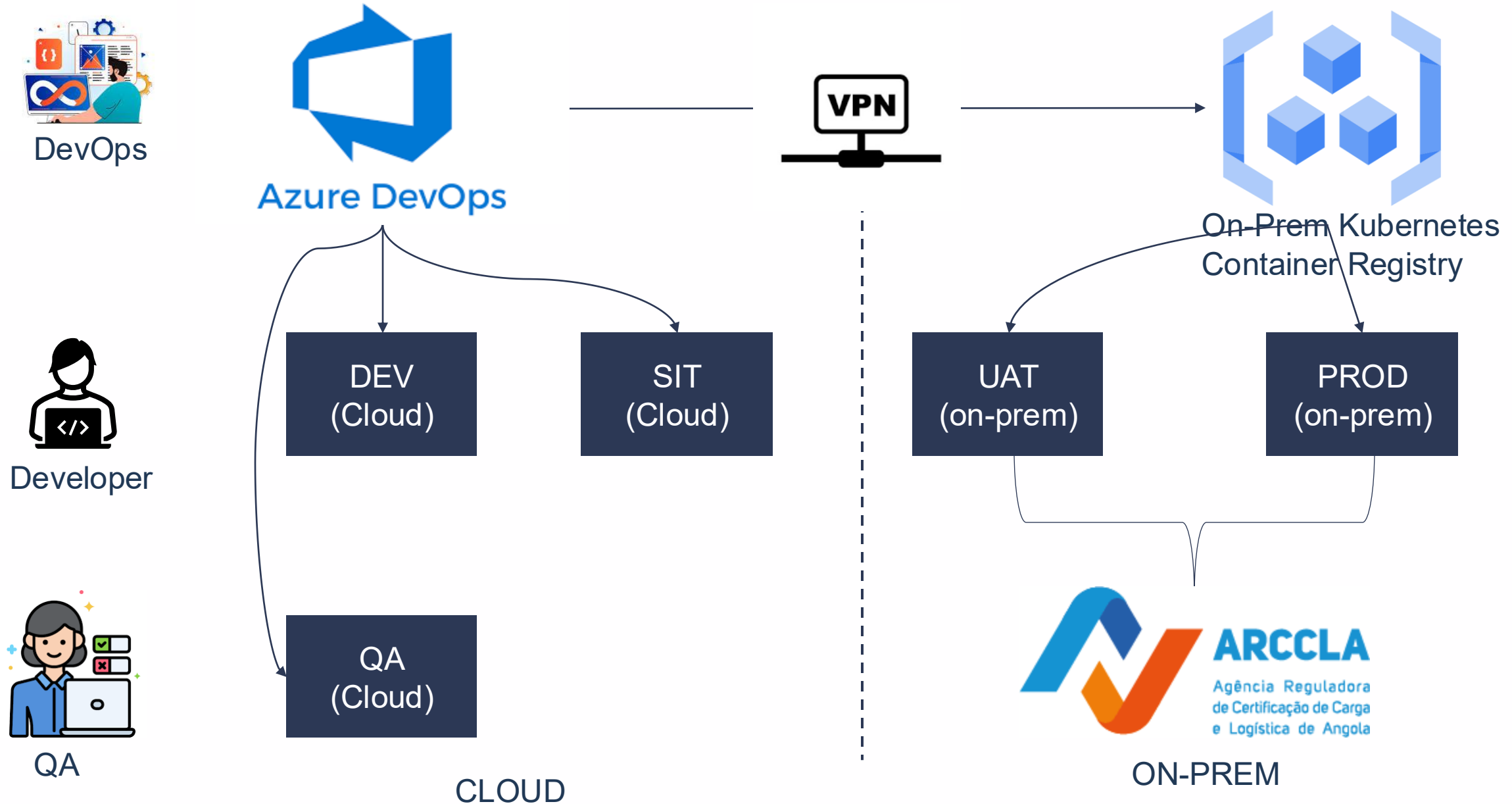


Why Kubernetes ?

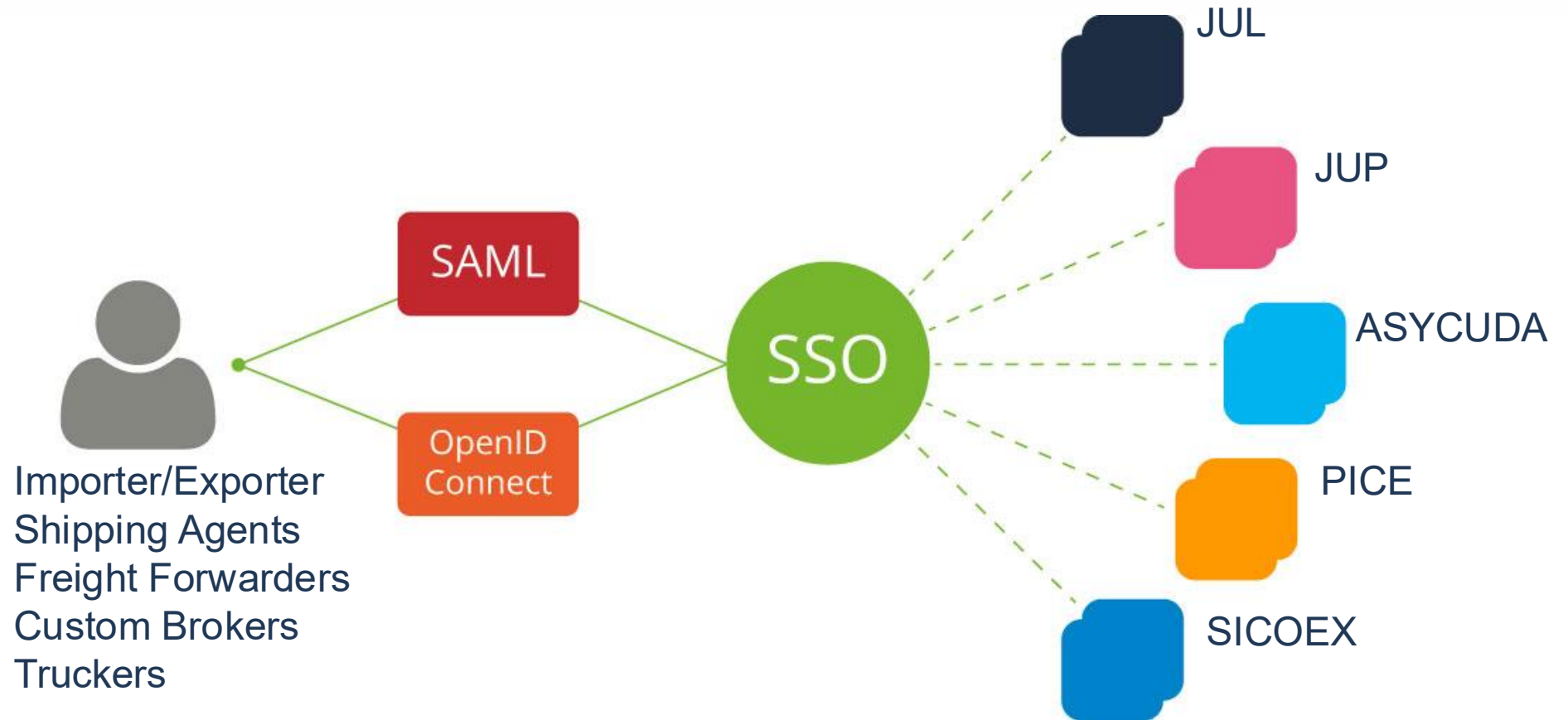
- ✓ **Portability**
- ✓ **Scalability**
- ✓ **Resilience & self-healing**
- ✓ **Automated deployments & Rollbacks**
- ✓ **Faster development cycles**
- ✓ **Resource optimization**
- ✓ **Extensibility**
- ✓ **Security**



On-prem Release Management

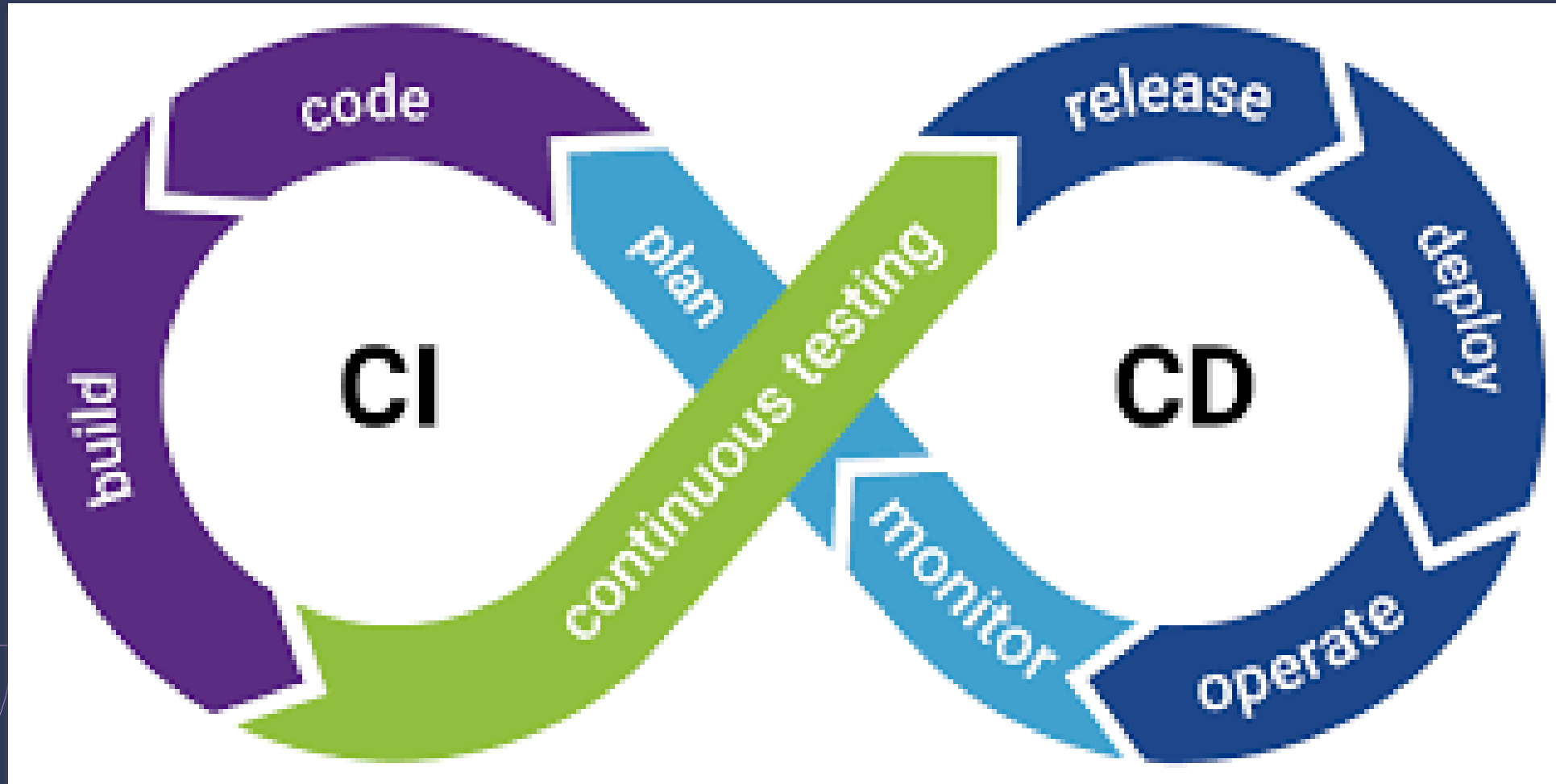


Single Sign On



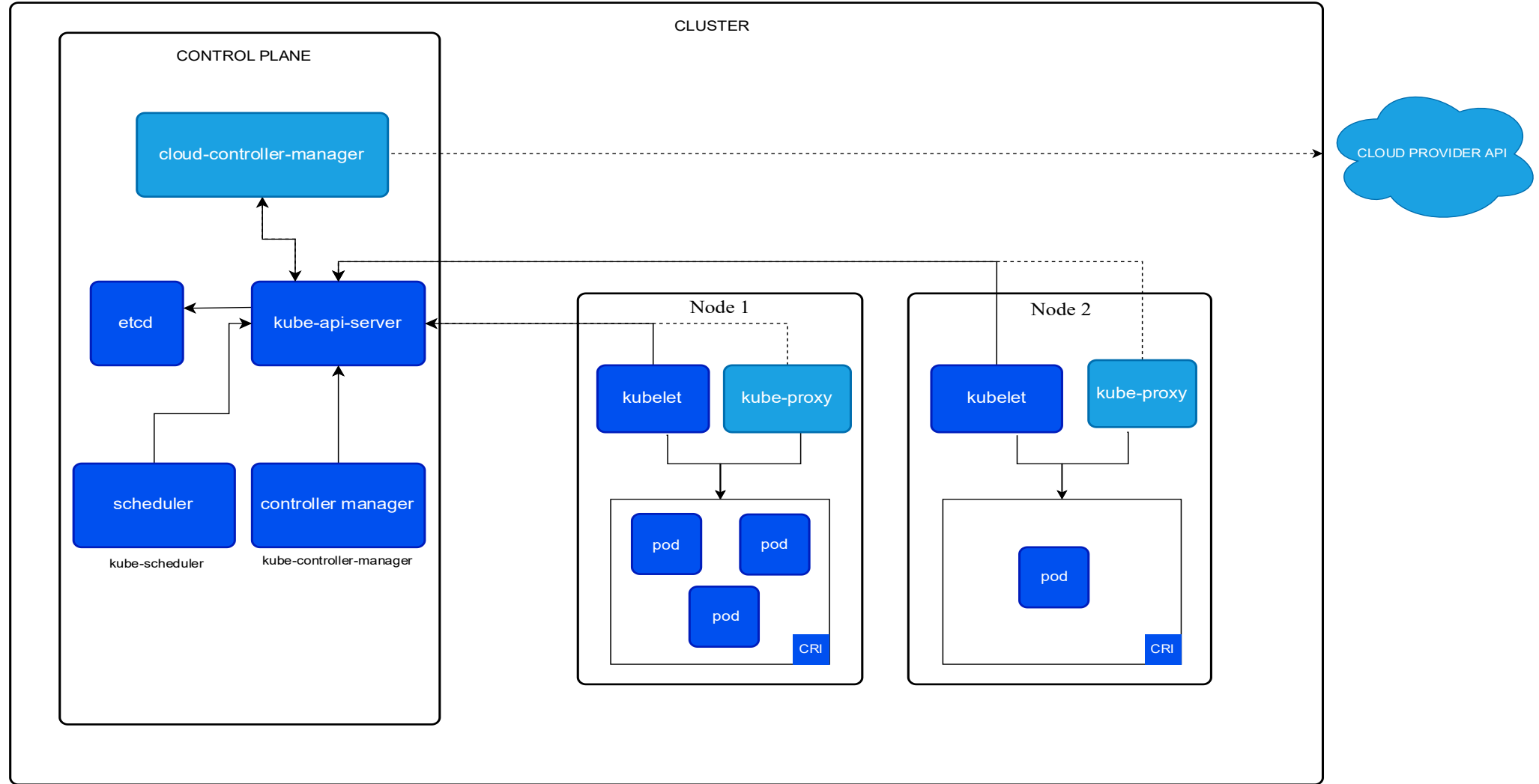


CICD



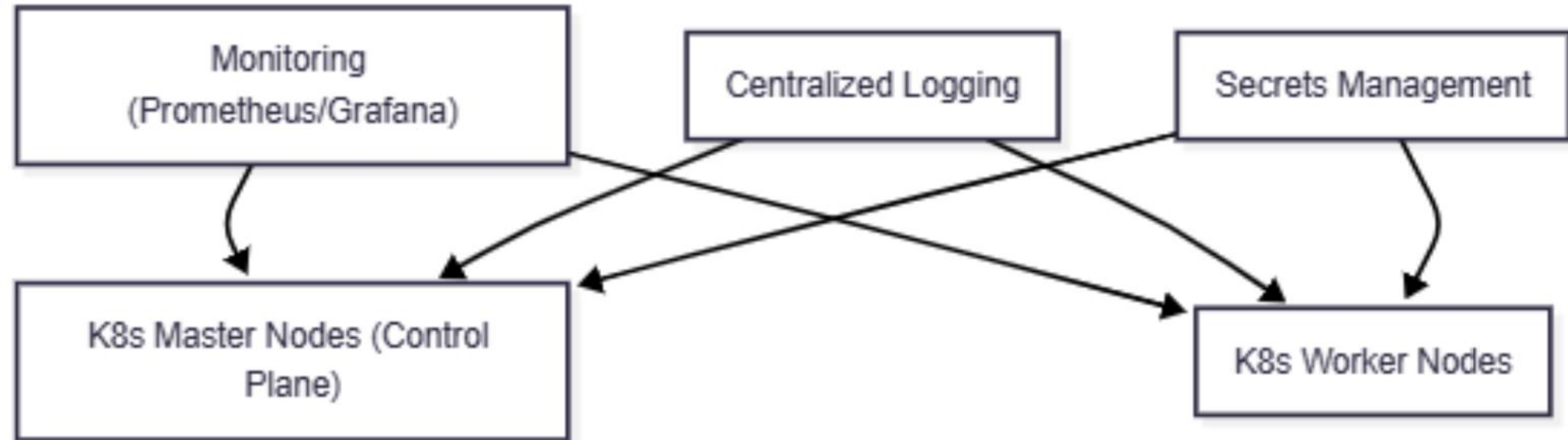


Typical On-prem Kubernetes(K8) Cluster



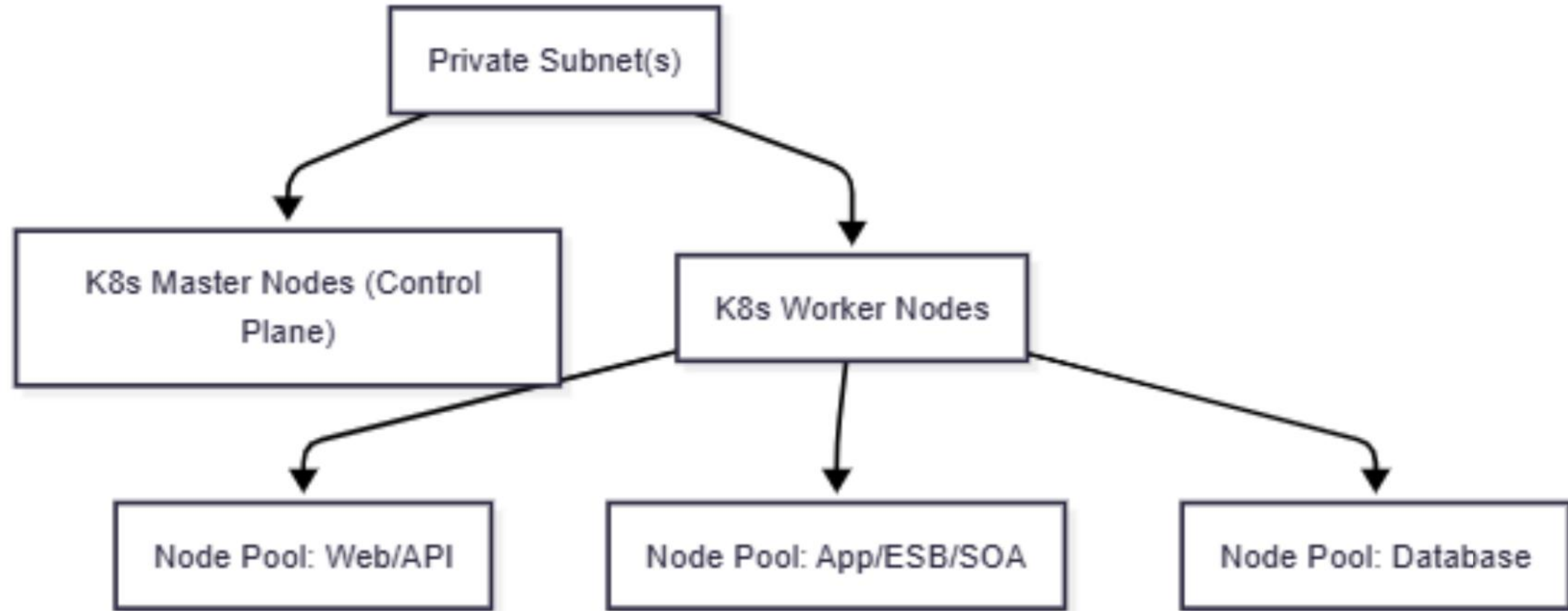


On-prem cluster management



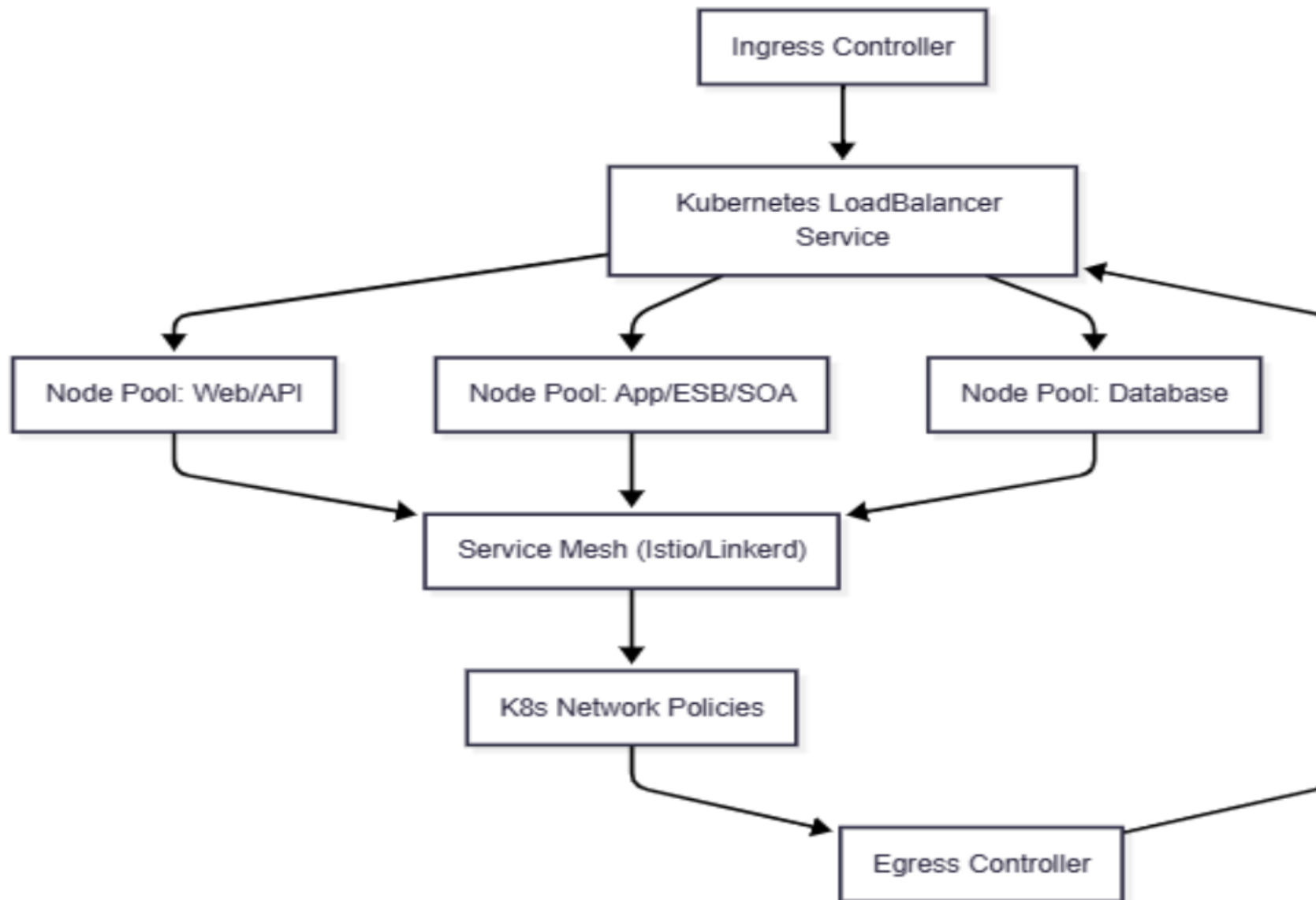


On-prem cluster node pool



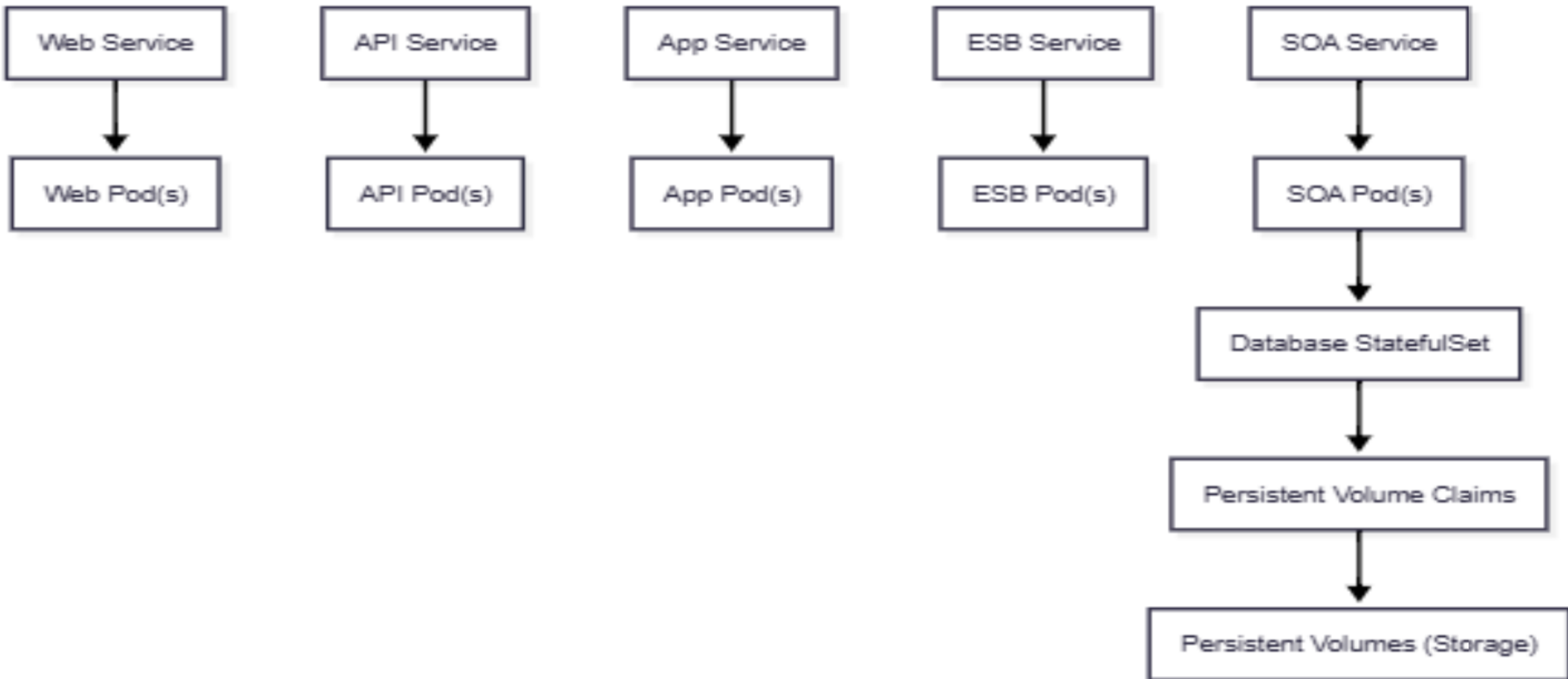


On-prem cluster network management





On-prem app deployment management



Thank you