



**PEO  
DIGITAL**

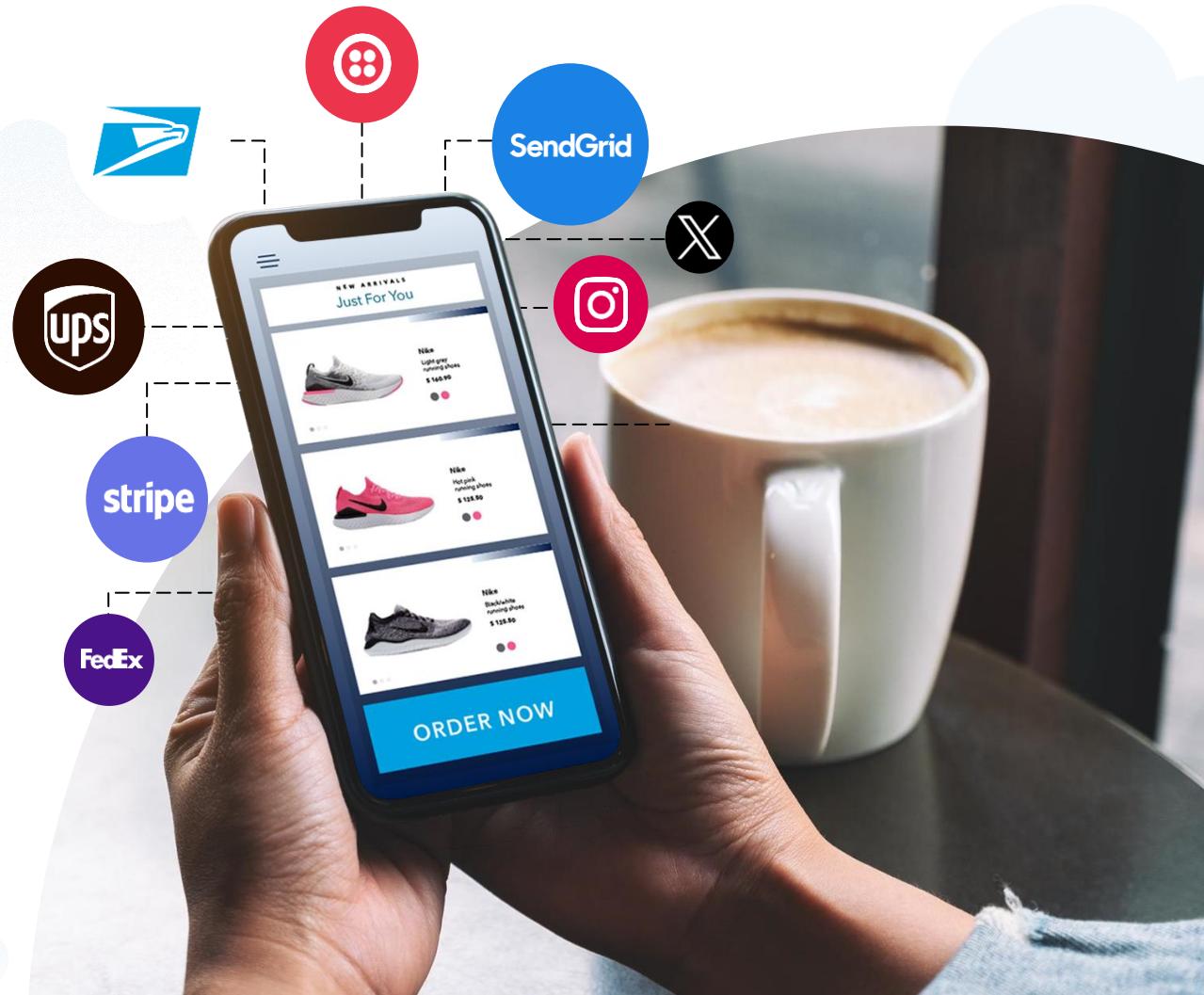
PROGRAM EXECUTIVE OFFICE DIGITAL & ENTERPRISE SERVICES

# Central Data Exchange - Scaling Pilot Partnership

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Chief Engineer





## Integration Challenges

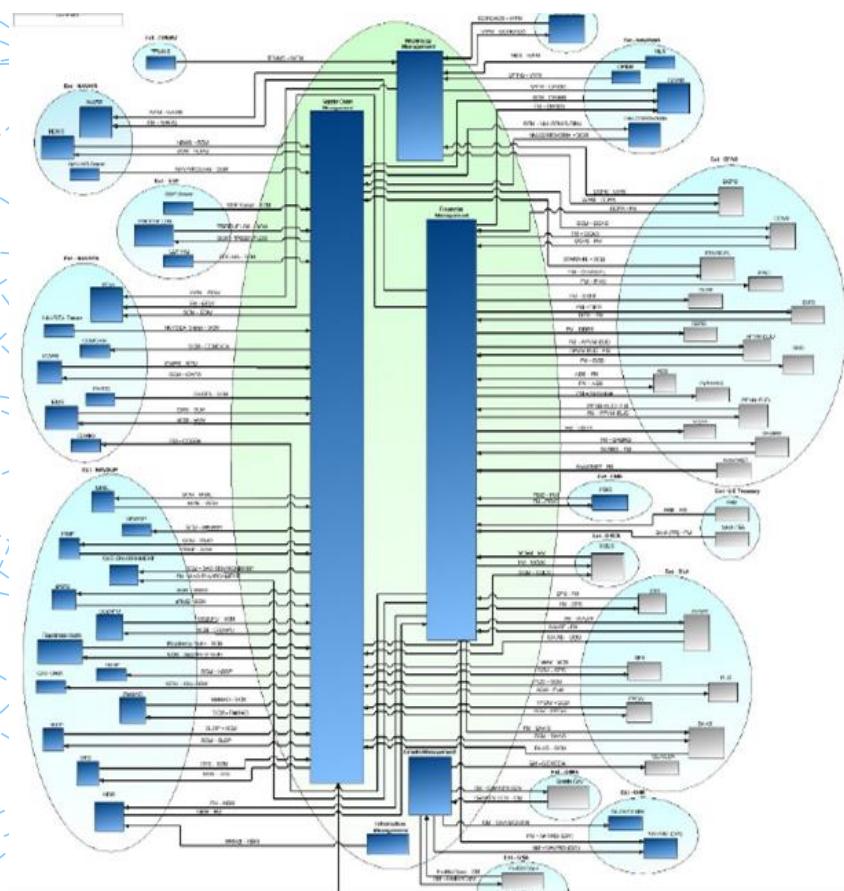
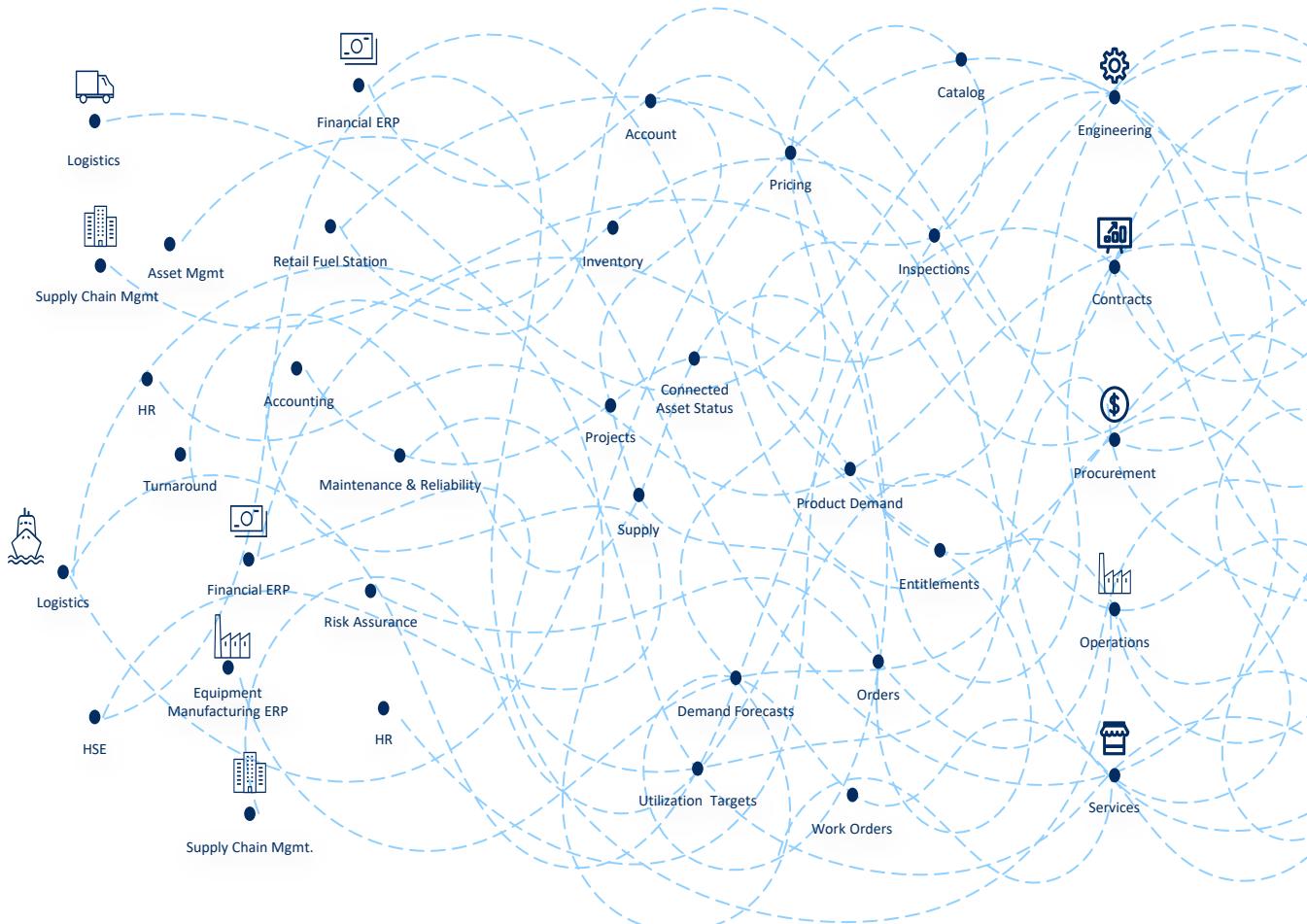
## Point-to-Point Connectivity

## Legacy Systems

## Custom Code

## Unstructured Data

## Siloed Orgs & Solutions



## DoD Fulcrum: DoD IT Advancement Strategy

“The DoD CIO mission is to connect, protect, and perform... *What success looks like: A seamlessly integrated digital ecosystem characterized by an intuitive UX, where the right users can access the right data, at the right time, for the right reason.*”

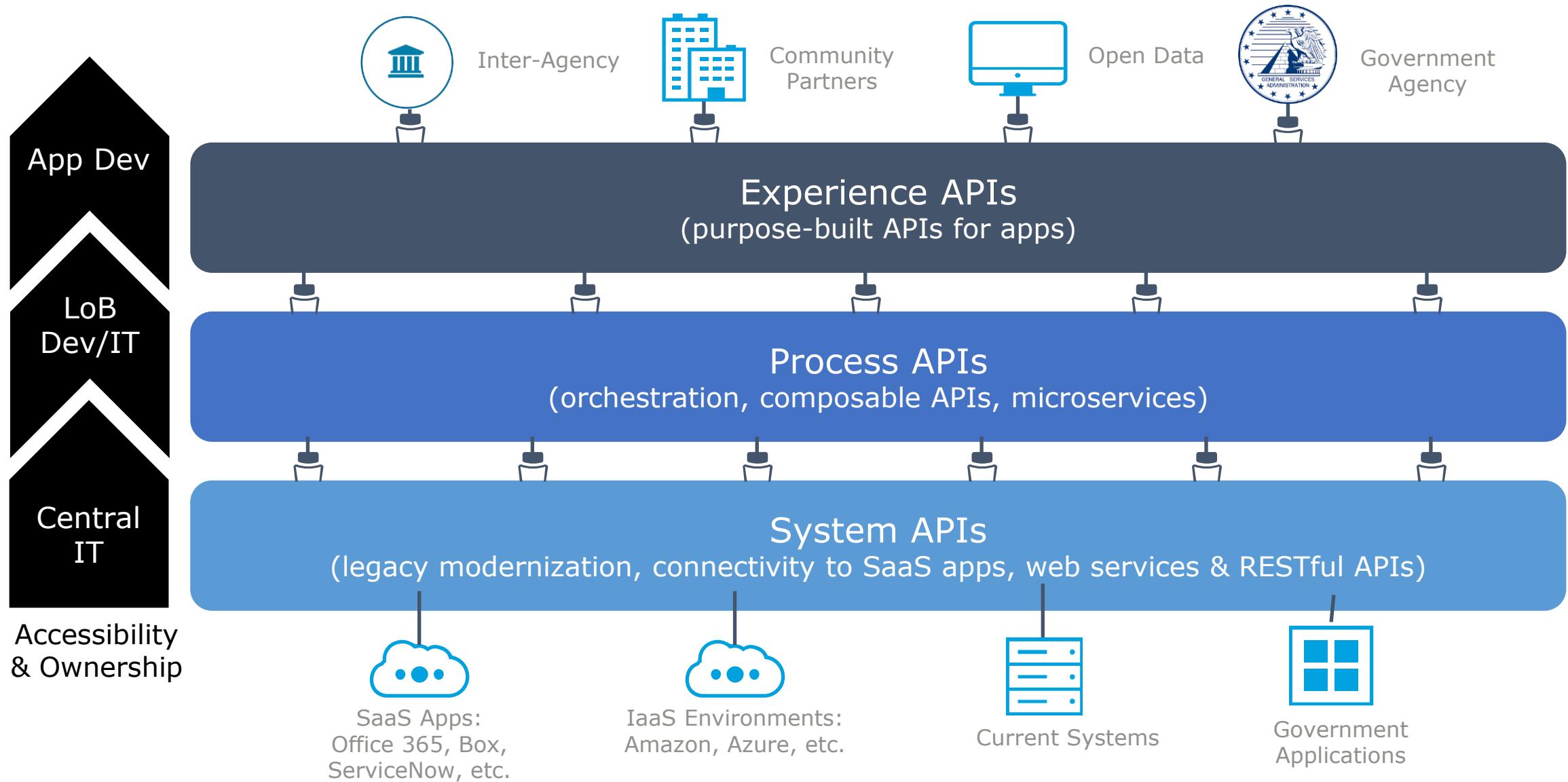
## DON ISV 2.0 Optimize, Secure, Defend

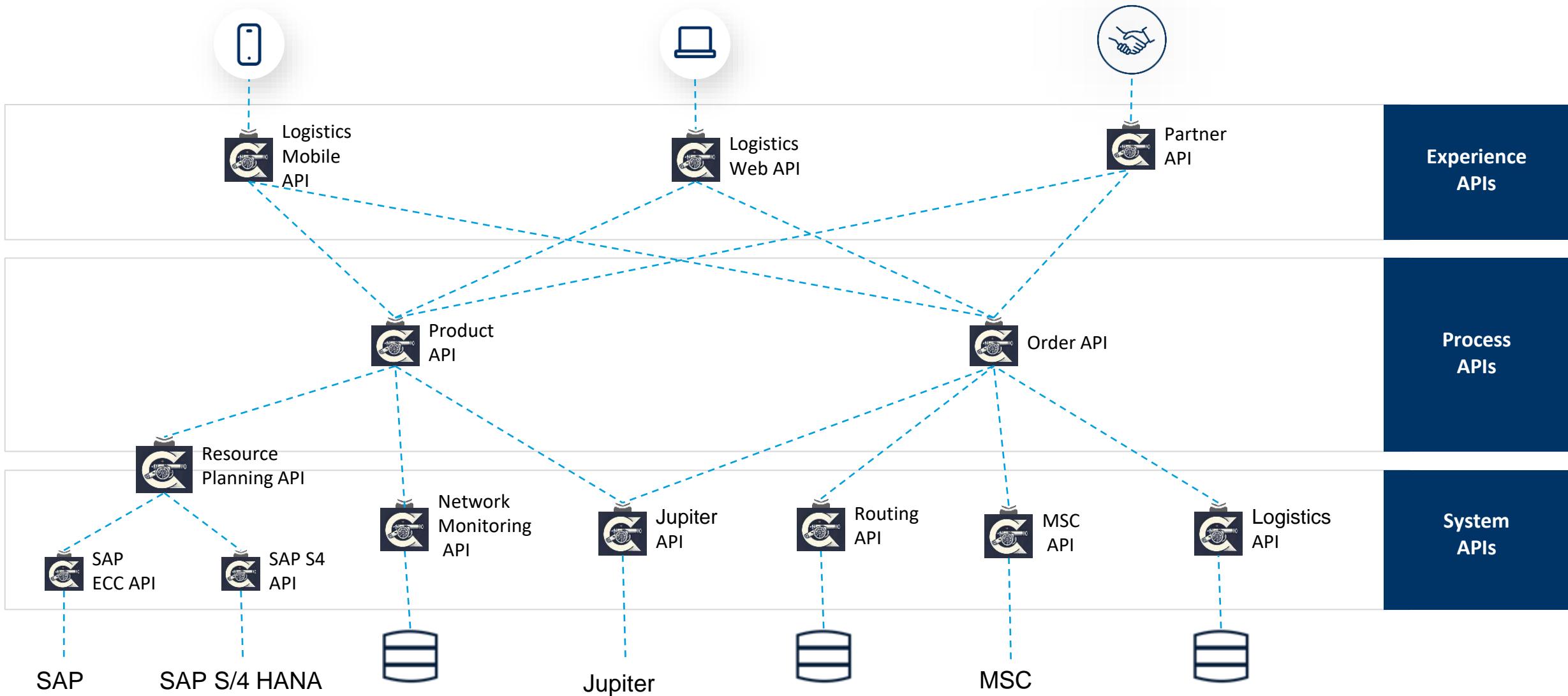
“The key tenets of optimize are simplify; build once, use often; eliminate unnecessary redundancy.... Technical solutions will be purposefully designed to enable data movement, interoperability, and discovery. Decision advantage will be driven by a skilled data workforce generating authoritative and integrated analytics and AI products... The future state is an integrated cloud environment that allows data maneuverability from the tactical edge to the enterprise at the speed of relevance.”

## Navy Blueprint - V1

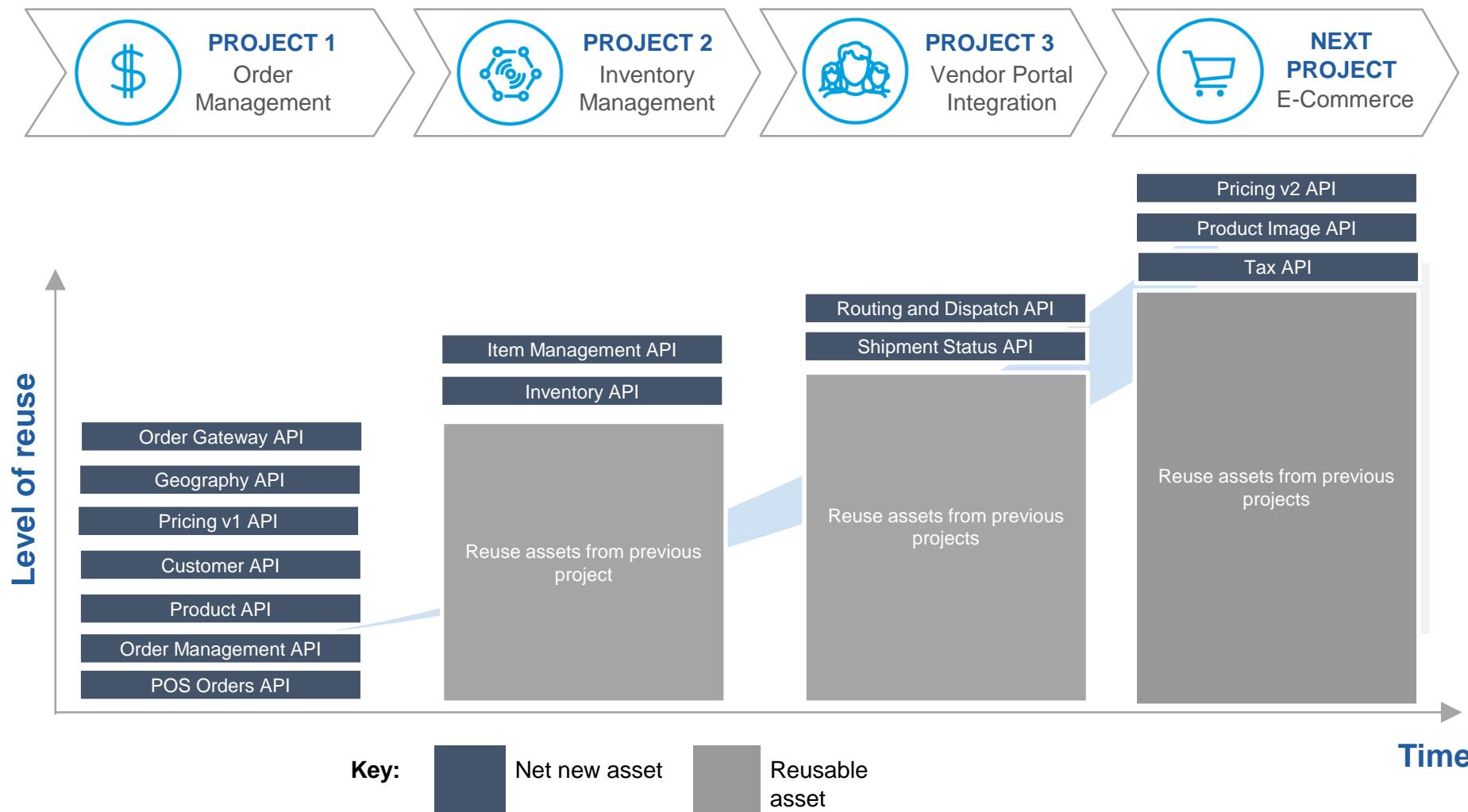
“Navy Blueprint ... captures future vision and modernization initiatives aimed at unifying architectures across operating forces, platforms, and services... promotes the delivery of an effective IT solution that supports a global plug and play architecture between distributed nodes.”

# A New Paradigm: Composable Architecture





# Compounding Benefits with Each New Project



# Ex: Siloed Approach to Integration

## PEO XXX

Tech: Batch / Extract  
Transform Load

Infrastructure: \$350k

Licensing: \$650k

Labor Support: \$1m

ATO Support: \$500k

Total: \$2.5M

## PMW XXX

Tech: iPaaS (Integration  
Platform as a Service) +  
Open Source

Infrastructure: \$200k

Licensing: \$200k

Labor Support: \$600k

ATO Support: \$200k

Total: \$1.2M

## NAVXXX

Tech: API Management +  
Open Source

Infrastructure: \$500k

Licensing: \$100k

Labor Support: \$400k

ATO Support: \$200k

Total: \$1.2M

## ERP

Tech: Enterprise Service Bus

Infrastructure: \$400k

Licensing: \$500k

Labor Support: \$1.2m

ATO Support: \$300k

Total: \$2.4M

## NSWC XXX

Tech: Migration & Sync

Infrastructure: \$200k

Licensing: \$150k

Labor Support: \$250k

ATO Support: \$100k

Total: \$700k

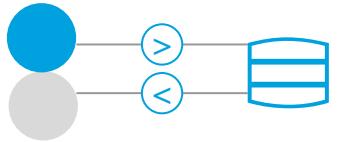
*~\$8 Million spent year 1 in this notional example, ~\$6.7 in annual recurring costs*

## Goal: Federated Enterprise Solution



- **Tech:** iPaaS + APIM
  - 60+ integration patterns
- **Infrastructure:** PEO Digital
  - Roadmap to full SaaS
- **Licensing, Labor, ATO**
- **Support:** PEO Digital
- Proven scalable technology
- Capability for business group segmentation
- Reuse Management Plane ATO and licensing

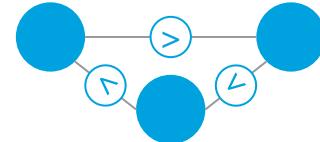
Platform Benefit	Unique Capability	Average Impact
<b>Improved Delivery Speed &amp; Agility</b>	Unified capabilities for full API & integration lifecycle + reusable assets	 74% <p>faster delivery of APIs &amp; integrations <small>(derived from 56% SDLC efficiencies, 42% code reuse)</small></p>
<b>Reduced Maintenance &amp; Change Effort</b>	Single management pane for APIs and hybrid integrations + reusable assets	 76% <p>reduction in API &amp; integration maintenance (run/change) costs <small>(derived from 58% single pane efficiencies, 42% code reuse)</small></p>
<b>Improved Code Reuse</b>	Secured, productized, and easily discoverable & consumable API & integration assets	 42% <p>API &amp; integration code reuse rate leads to higher return on IT assets, faster delivery speed, and reduced maintenance &amp; change effort</p>
<b>Reduced Deploy &amp; Run Costs</b>	Hybrid-ready & lightweight runtimes; highly scalable, available & reliable integrations	 90% <p>reduction in deploy &amp; run costs <small>(integration HW, SW, infrastructure)</small></p>
<b>Improved Code Quality</b>	Easy integration with CI/CD pipelines & embedded testing	 73% <p>improvement in API &amp; integration QA &amp; testing time</p>
<b>Quicker Developer On-ramp</b>	Unified platform with graphical and web-based tooling	 72% <p>improvement in time to API &amp; integration developer productivity</p>
<b>Increased Security &amp; Governance</b>	Node level policy-based security, end-to-end governance, security gateway	 *** <p>reduction in impact from security breaches; lower cost to ATO, maintain security &amp; governance</p>



SaaS Integration



API Creation & Management



Integration Microservices



EDI Exchange / B2B



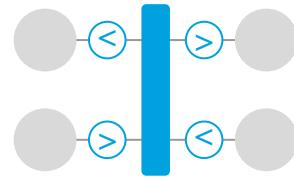
Evented APIs



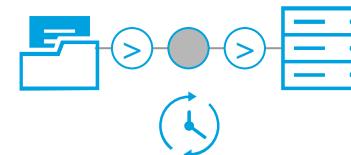
Migration & Sync



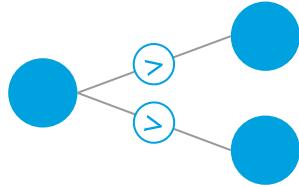
Web Services



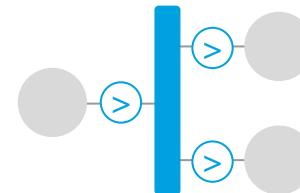
Service Bus



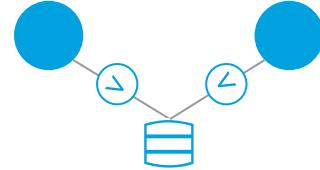
Batch Processing



Broadcast /  
Pub Sub



Messaging & Queues

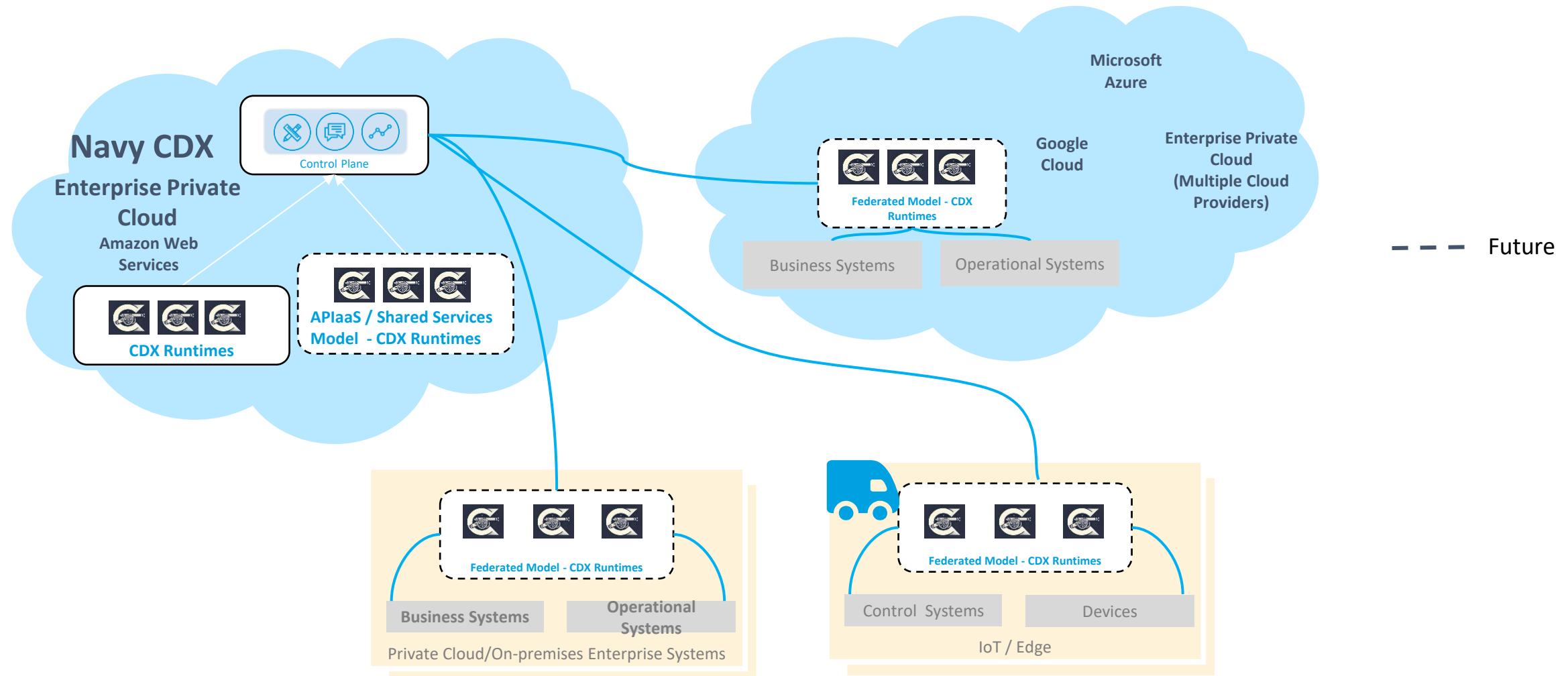


Aggregation

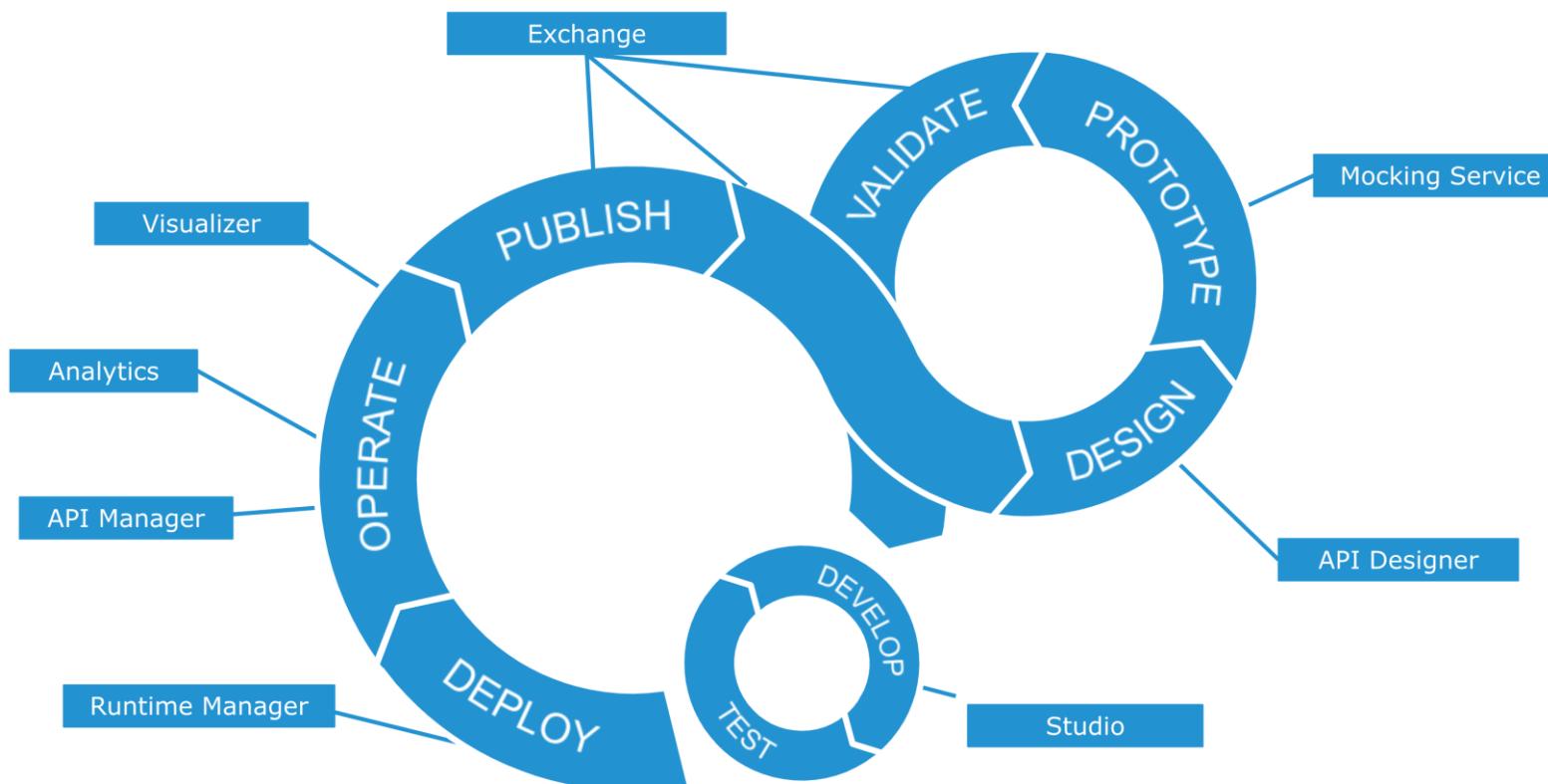


FTP/SFTP File Gateway

# Enterprise Deployment Topology APIaaS, Federated Model Options

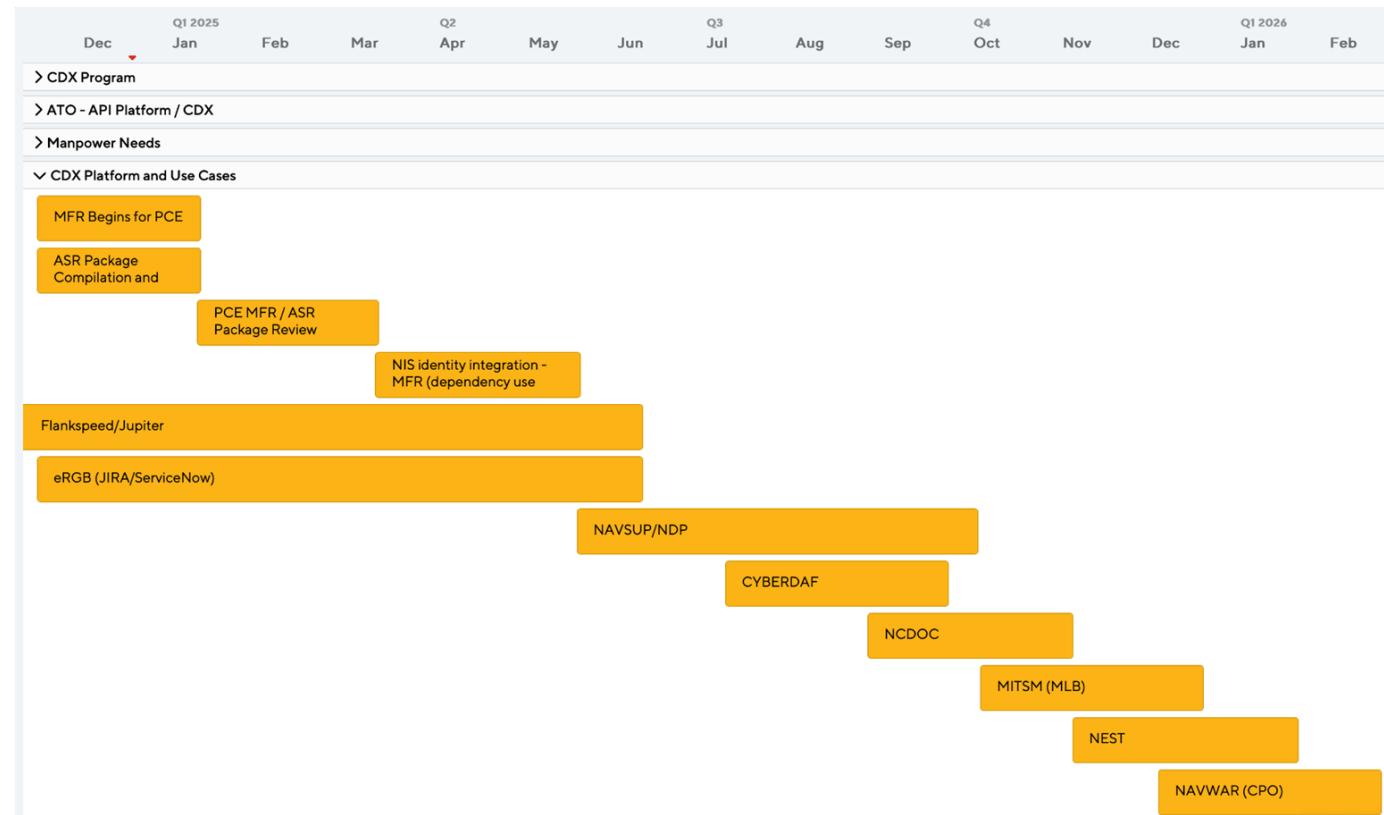


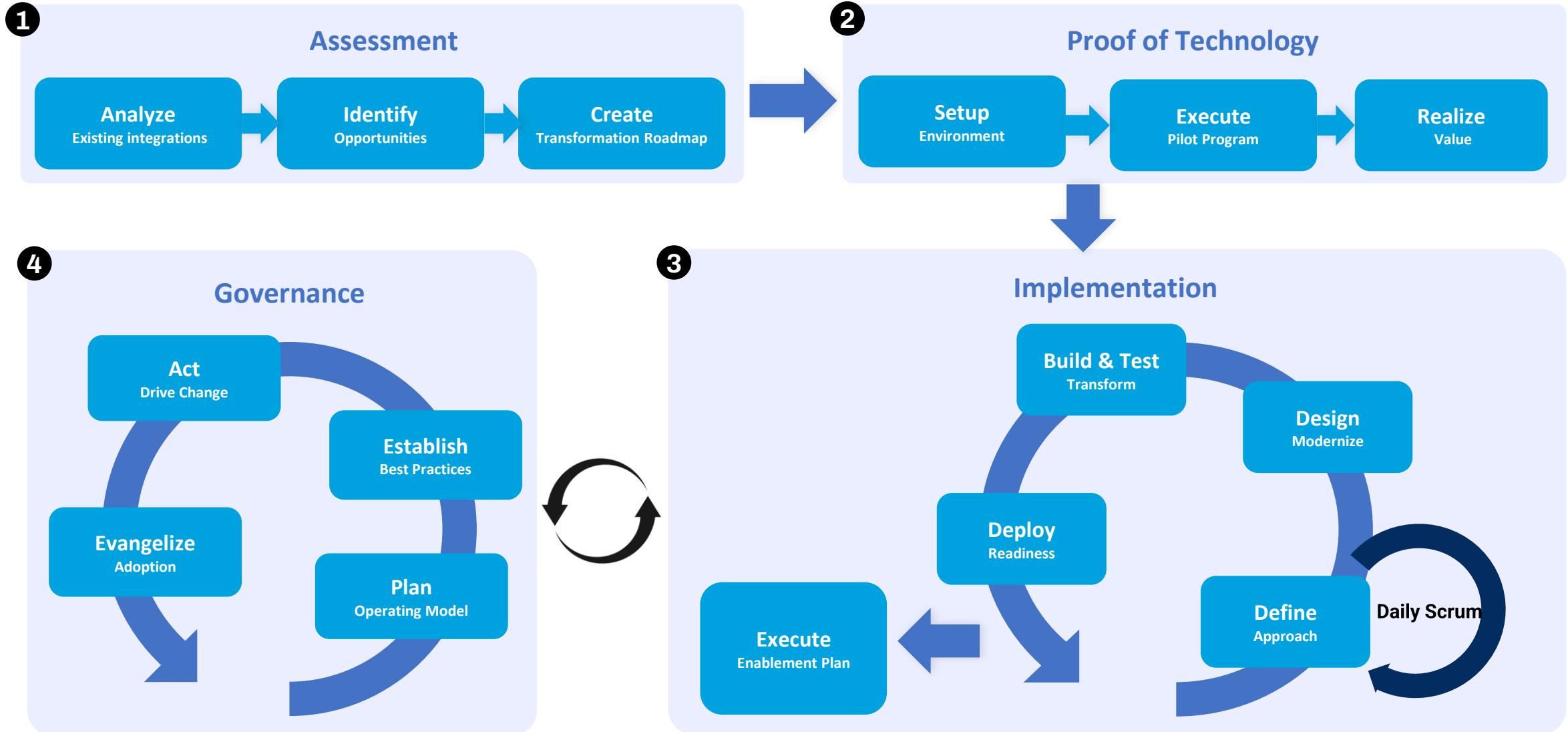
In addition to providing a middleware solution to provide API-Led connectivity, the CDX is also enabled with best-of-breed tools including UI for full lifecycle API management, API Library for re-use, real-time data analytics, and security and policy management.



- **CDX Exchange** is an API library that provides API documentation/templates, access to accelerator API connectors, hosts 100s of pre-built connectors (SAP etc) for connectivity and re-use.
- **Runtime Manager** management plane for API services and CPU/Memory utilization visualization to optimize effectiveness and operational costs.
- **Access Management** enables segmentation of users, access and security controls, and allows for DON systems to have their own eco-system of private/public APIs
- **API Manager** is used to apply security policies, manage API access requests, and manage efficient scalability.
- **CDX Analytics** provides real-time visibility in the end-to-end operations and data points of the communicating systems

- Active In-Flight Development
  - Flankspeed / Jupiter (in Development)
    - API abstraction for automated bi-directional data delivery for large data sets (up to 5TB)
  - eRGB (JIRA / ServiceNow) (Phase 1 DEV Complete)
    - Automating redundant manual process in near-realtime w/ error handling and health endpoints
    - Mule pre-built connectors with API integration
- Backlog
  - NAVSUP (Navy Data Platform): Data migration & Cattle Drive
  - CYBERDAF (*Multiple Use Cases*)
  - NCDOC: Cyber alert log correlation for faster response
  - NEST: Cost reduction through runtime consolidation
  - Command Property Officers (CPO): NAVAIR, NAVSEA, NAVWAR CPO Digital Transformation WG supporting Warehouse Management System (WMS), Warehouse Execution System (WES), & Internet of Things (IoT) integration with Navy ERP





# Platform Demo



# Questions?