



**US Navy  
PEO Digital  
OTP ORE  
Business Case Analysis**

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## **Executive Summary**

### **Overview**

**Purpose**

**Problem Statement**

**Background and Context**

**Project Initiative Description and Requirement**

**Major Capabilities and Benefits**

**Scope**

**Assumptions and Constraints**

**Points of Contact and Roles & Responsibilities**

### **Use Case/Alternatives Analysis**

**Use Case Summaries**

**Cost Implications**

### **Conclusion**

**Cost and Capability Results**

**Additional Considerations**

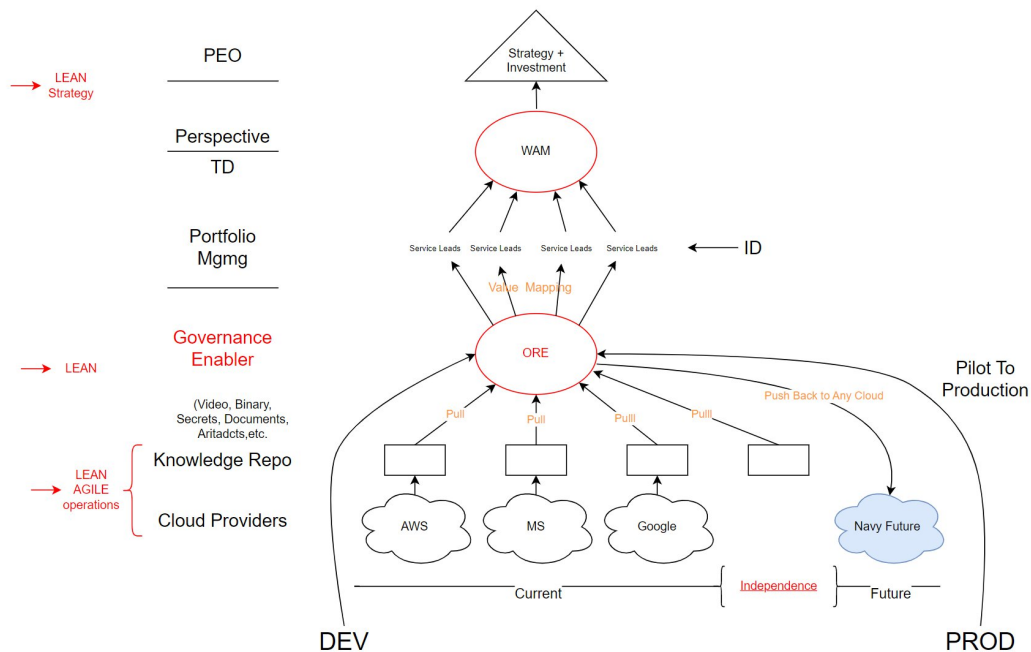
**Appendix A    ORE Capabilities**

**Appendix B    Detailed Methodologies**

**Appendix C    Acronym List**

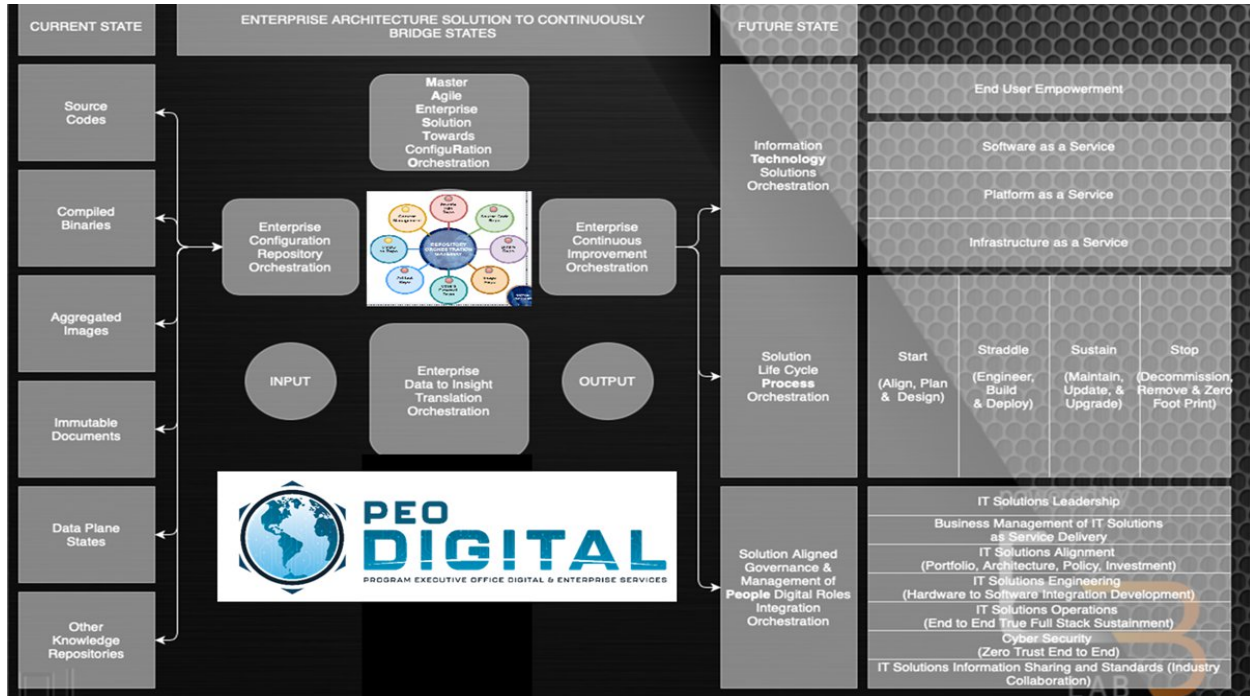
## Executive Summary

The vision of the Department of the Navy (DON) for “digital transformation and optimized program alignment across Navy and Marine Corps enterprise IT capabilities” necessitates the Navy’s infrastructure to [be able to keep up with rapidly changing environment, modern services and IT software, security, cost effectiveness, and end user efficiency]. The DON is right to understand that this vision requires the resources and expertise to build an enterprise-class digital platform and implement a modern service delivery model with end user centricity in mind which are captured via World Class Alignment Metrics (WAM). To accomplish this, the Navy needs the right tool to integrate and orchestrate all of its [networks, data, software, and configurations, etc.] while providing independence, ownership, and control of the same so that it can operate at the cutting edge of a rapidly changing, [cloud native, hybrid, multi-cloud environment] with security, mobility, efficiency, and cost effectiveness. This Business Case Analysis (BCA) evaluates how the capabilities [and cost?] of the Orchestrated Repository for Enterprise (ORE) align with Navy objectives in comparison with [the current capabilities of Navy infrastructure and that of other alternatives]. This Orchestrated Repository for Enterprise will enable the collection and retrieval via indexing to enable translating data into outcomes. Furthermore, the ORE enables alignment to the Department of Navy’s goal of providing ubiquitous access to data to the end user through methods of federation and open standard API’s architectures in a distributed multi-cloud environment so Navy can securely control their environment and maintain operational resiliency.



Orchestrating Business processes and ensuring Governance of the IT life cycle to support Government Owned Contractor Operated network is also critical in ensuring the DON achieves optimal services to the end user but also maintains control of managing these services in a Government Ownership role. With over two decades of outsourcing coupled with the technology paradigm shift, complexity of Government oversight managing multiple services from Azure, Amazon, Google Cloud etc. requires technology that enables the ability for controlling Navy’s distributed environment securely. .

The figure below [figure #] illustrates how the ORE takes data and systems that are siloed and unorganized, and provides a centralized ecosystem through API driven architecture that integrates distributed storage and networks on multiple hybrid cloud platforms, synchronizes software and configurations, and orchestrates all the applications and repositories from one central location. This is what enables the efficient management of IT solutions, the IT solution life cycle process, and the alignment of governance and management roles to those solutions. Such a centralized ecosystem is necessary to give the Navy the visualization and orchestration tools necessary to be able to exercise independence, ownership, and control of its platforms, data, and other IT solutions while maintaining optimal security and performance in a modern, distributed, cloud native, API driven environment.



## Overview

### Purpose

This Business Case Analysis (BCA) analyzes the landscape of the Navy's network and other IT solutions and whether they align with the capabilities necessary for the Navy to effectively achieve its objective of digital transformation and modernization of IT capabilities. It evaluates how the Navy's current solutions are not sufficient to meet its objective and how the Orchestrated Repository for Enterprise (ORE) meets the requirements to deliver these necessary capabilities.

### Problem Statement

The Navy's current network is comprised of a large amount of data and IT solutions that are operating in silos, many of which are owned and controlled by outside vendors. The Navy operates in environments hosted on cloud platforms that are controlled by the major cloud providers (Azure, AWS, Google Cloud Platform (GCP) ) or on legacy on-premise infrastructure that cannot operate in a cloud

native environment. Data, configurations, applications, and other IT solutions are stored and controlled by outside vendors, and there is a lack of visibility into the software and services owned and operated by vendors making effective oversight of those operations nearly impossible. Therefore, the Navy is unable to independently manage its own storage, security, processes, and configurations, which puts Navy IT solutions in a position of being unable to communicate with each other efficiently or securely, being unable to optimize poorly performing applications, being unable to integrate and automate technical, operational, or business processes, and being unable to sufficiently control access to information. This lack of visibility also hinders the ability for the Navy to obtain operational resiliency because of lack of control on the services and being able to reconstitute services in case of outages. Navy IT solutions have become locked in to disadvantageous cost structures and do not have the ability to store, archive, retrieve, and share data necessary for provisioning, sustaining, or decommissioning systems as a part of the plan for digital transformation. These are the technology Outcome Driven Metrics that feed and enable the WAM.

Therefore, the Navy needs a solution that will provide oversight and enable good governance over the entire process of transforming and modernizing its legacy network. To truly achieve its objective of digital transformation, this solution must provide several critical features including;

- A central repository for storing, retrieving, sharing critical documents or artifacts used in designing, building, maintaining, and optimizing the system.
- Quick and secure access to all the different applications used in this process.
- The ability for governing authorities to consolidate and control access to information logically, physically, or temporally.
- Efficient management and communication between the many vendors, contractors, service members, and other stakeholders involved in the process.
- The ability to aggregate information pertaining to feedback, measurement, and evaluation for use in optimization.

Without such features, the Navy will continue having operational difficulties including:

- Critical Knowledge and information is lost, misplaced, or difficult to find and use
- Applications are cumbersome to use and monitor,
- Third parties have diverging standards and sets of data making collaboration more challenging
- There is no way to fully ascertain a detailed and comprehensive perspective on the flaws present in the system.
- Poor performance of software, networks, and other IT solutions
- Barriers to communication,
- Structural fragmentation
- Compromised security and sustainability of software, networks, and other IT solutions

From a different perspective, the problem can be summarized in several critical questions the Navy must answer in order to achieve digital transformation and modernization:

- How is the government going to secure ownership and control of multi-cloud environments that are currently controlled by major cloud providers?
- How is the government going to secure ownership and control of its data, configurations, applications, and other software and technology solutions that are currently owned and operated by contracted vendors?
- How is the government going to secure effective oversight and control of contractor operated software and services without losing control of critical data and configurations?
- How is the government going to maintain independence from contractors to fulfill its disaggregation strategy without an API driven solution for extracting, storing, retrieving, and analyzing data contained on separate platforms and applications currently owned and operated by other vendors?
- How is the government going to secure centralized control of the execution of work without the ability to integrate, synchronize, and visualize systems and data that are currently siloed, uncoordinated, and difficult to access? And without the ability to securely store and share information that is currently kept in systems that do not communicate with each other?

### **Background and Context**

The technology design underlying the ORE was originally developed for the US commercial financial sector, but the prototype proved that its capabilities are critical to the Navy's effort to update and modernize its IT systems as a part of its digital transformation strategy, especially as it pertains to the development of Navy Digital Platform (NDP), Acquisition recompetete independence, and WAM outcomes. In order to transform its legacy platform into a modern, cloud native platform and to retain ownership and control of its data storage and IT processes, the Navy needs a capability that can integrate and orchestrate its data, applications, configurations, and processes that are currently hosted in different legacy or cloud environments and driven via API's. It needs a tool that is optimized for a hybrid, multi-cloud, cloud native environment that provides visibility, independence, adaptability, and resilience necessary to put in place the right governance structures to provision, operationalize, sustain, and optimize solutions.

The Navy currently lacks any tools that are capable of providing the necessary features to implement the governance structures or the IT solutions for modernization. The ORE has built in integration, automation, synchronization, and centralization features that can orchestrate data and applications from any network or storage location. The Navy's current vendors either lack the expertise to build and implement a modern cloud native network, or they lack the economic incentive to market such a tool because it conflicts with their business model - i.e. their model is naturally opposed to facilitating the Government having control of a solution driven by Government Specification to be consumed on Government owned platforms. This causes vendors to have roadblocks to updating software and solutions, to preventing vendor lock, and to sharing information such as code, configurations, and other intellectual property that should be government owned yet is not under the government's control. This has created an atmosphere of stagnation and rigidity leading to risks and inefficiencies in cost, security, and performance. Now the Navy has been left with solutions that are incapable of integrating with each other, sharing information with each other, or scaling up to meet the

demands of the Navy's mission. Therefore, the ORE was created to resolve these deficiencies and help move the Navy back into the forefront of the into modern IT landscape.

### **Project Initiative Description and Requirement**

This BCA was developed as a part of PEO-Digital Enterprise Services procuring implementation and productionizing services in support of the Operationalizing Modern Enterprise Capabilities as a Service model that was prototyped under, IWRP 19-LANT-0012.

### **Major Capabilities and Benefits**

Implementing the ORE will provide many features that directly impact the governance, operations, and user performance of the Navy's systems, as well as facilitating digital transformation and modernization. Some of the major capabilities and benefits are as follows:

Visibility - The orchestration of applications and resources through API integrations enables the automated extraction and aggregation of relevant data from distributed storage and networks to be customized and visualized in centralized dashboards. The centralized access to each application also enables effective and efficient monitoring, reviewing, and coordinating of all enterprise systems and processes. This visibility is critical for good governance of all Navy operations and aligns to the pillars of zero trust.

Data Metrics - Data metrics are a specific form of visibility that can be shown on the dashboards to enhance understanding and control of operations and can be customized according to the needs of the user or group.

Access Control - User role management, user permission controls, management of passwords, and management of access to features and software is all centralized so that those in the correct leadership or management positions have visibility into who is using the system, what they have access to, and what they are doing in the system. They also have the ability to tailor that access to the specific needs of the users and revoke the access when necessary.

Automation - The ORE's features facilitate extensive automation, which is essential for a modern devsecops process, for the effective testing and optimization of IT solutions, and for the effective management of a modern cloud native platform. If the API integration is the "glue" that holds everything together, then automation is the gears that keep everything working smoothly.

Continuity of Operations - The ability to synchronize and orchestrate data and IT solutions that are distributed on various platforms and networks, as well as the ability to efficiently provision, manage and sustain, and decommission resources through centralized extraction, storage, and retrievability of data and configurations, optimizes and ensures the continuity of operations at all levels including infrastructure, storage, platform, and software.

Institutional Life Cycle - Similar to the Continuity of Operations, the ability to synchronize and orchestrate data and IT solutions throughout every stage of the IT product life cycle fosters a healthy institutional life cycle for technology and systems that not only includes the design, build, and sustainment phases, but also facilitates continuous optimization and mobility.



Knowledge Management - the combination of features such as the searchability and availability of archived files from distributed or siloed storage, centralized access control, visibility into operations and the institutional life cycle, and automated integration of IT solutions enables the government to control all of its important data throughout the life cycle and archive it in a retrievable format regardless of whether it is from a government operated or vendor operated solution.

Risk Management - All of the previously stated benefits enhance risk management. Whether it is business risk, operational or technical risk, security risk, automated centralization, integration, access control, visibility, etc. are key to managing risk. Some specific examples include:

Mitigating the risk of vendor lock through the API driven integration that makes the ORE able to orchestrate the movement of data from any platform or software.

Mitigating the risk of cost overruns through the visualization of data metrics and resource monitoring enabling near real time view of how resources are distributed.

Limiting roadblocks to project execution arising from problems with accessing and sharing information.

Mitigating the risk of product failures by standardizing and storing configurations and source code so systems can be provisioned and patched quickly and repeatedly as well as enabling a true CI/CD pipeline with rapid deployment.

World-class Aligned Metrics (WAM) -The ORE's centralization, integration, orchestration, automation, and controls are necessary to achieve WAM outcomes.

Adaptability/Mobility - The visibility and control provided by the ORE, as well as the automation and synchronization features that seamlessly connect distributed storage, networks, and platforms, combined with integrated Agile development and project management principles, makes the ORE a vital part of the Navy's effort to provide mobile, adaptable systems.

Operational Resiliency - The ORE's ability to synchronize and manage distributed network, compute, and storage resources in hybrid, multi-cloud, cloud native environments, as well as the ability to ingest data from legacy environments in a format that is archivable and retrievable, combined with the security and efficiency that comes with automated work flows that are visible and tracable, make the it essential to the operational resiliency the Navy is trying to achieve.

Time Lost Optimization - When it comes to provisioning, development, allocation, accreditation, authorization, monitoring, updating, and replacing distributed physical, virtual, and human resources, as well as operating the many (currently siloed) IT solutions the Navy needs to utilize to achieve its objective, the centralization, integration, synchronization, and orchestration of storage, applications, configurations, and network resources makes every process and work flow related to these operations and systems more efficient. This eliminates much of the time that is wasted with uncoordinated systems that do not share information.

Cost per User Optimization - all the same features mentioned in "Time lost Optimization" previously also apply here. Costs per user are optimized when all resources are coordinated, monitored, and updated efficiently. Optimized costs are the natural result of the visibility, adaptability and mobility, and time efficiencies that the ORE provides.

Customer/End User Satisfaction - The visibility, efficiency, mobility, control, and automation of the ORE naturally increase user satisfaction since the IT solutions the users must use on a daily basis, along with the systems, process, and work flows related to them, are made more efficient, more resilient, more manageable, and more aligned with their objectives.

**Scope**

**Assumptions and Constraints**

**Points of Contact and Roles & Responsibilities**

**Use Case/Alternative Analysis**

The following use cases illustrate features in the ORE that meet the capability needs of the Navy as discussed in this BCA. The analysis includes some alternatives that, while not meeting the needs of integration, synchronization, centralization, etc.. may provide a similar function to one of the features in the ORE.

Use Case	Re-compete Contract Bidding
<b>Overview</b>	In order to design, build, sustain, and optimize Navy networks, infrastructure, hardware, licenses, and other IT assets, PEO Digital needs an optimized process for contract bidding so these assets can be acquired quickly, securely, and efficiently. The optimal process would include the ability to distribute sensitive data to vendors while keeping control over who is able to access and view the information, how long they are able to access and view the information, and while restricting those with access from stealing the information. This requires coherent visibility of who has access and when, control over what capabilities the end user has to manipulate the data, and the ability to revoke access without leaving data behind.
<b>Objective</b>	Design a technology solution that facilitates efficient and secure sharing of data while providing visibility into and control over the access and manipulation of that data from the beginning to the end of the process.
<b>ORE Feature/Process Alignment</b>	This use case is an example of the capability of Secure and controlled temporary sharing of files (documents, videos, and configurations) in the ORE. The ORE enables the user to control access to files by sharing information with outside users through a temporary and secure viewing room, in which the outside user is able to view the file but not download, print, or otherwise manipulate it. The granted access can be set for a defined period of time and can be revoked at any time. By using this feature, instead of sending out proprietary information through an unsecure channel, like email or a hard drive, and having no control over what the vendor does with the information, the Navy will be able to control who has access and when, to have visibility into

	<p>who has access, and to mitigate the risk of giving out otherwise proprietary information.</p> <p>So when it comes to recompete contracts, instead of sending hard drives or some other non-secure solution, you can just give vendors access to the temporary viewing room for any information they need. This improves time lost because it's instantaneous access, it makes the process much more adaptable to changes, it reduces cost, and streamlines the process for all end users, both those sending and receiving the information, as well as helping with risk and knowledge management as I noted before.</p>
<b>Alternative</b>	Sharepoint ( Source code, binaries, secrets is content that underpins the modern technology stack
<b>Cost</b>	

<b>Use Case</b>	<b>All In One Dashboard for Orchestrating Applications</b>
<b>Overview</b>	In order for the Navy to operate efficiently and govern effectively in a software driven, cloud native working environment, end users need to have quick, simple, yet secure access to all the applications that are relevant to them. This enables the users to maximize efficiency since they are not spending unreasonable amounts of time searching for the correct software applications, troubleshooting accreditation issues, and managing passwords that are easily forgotten. The optimal solution would include a centralized dashboard where all relevant applications can be accessed from one location, the ability to customize that dashboard so that only the applications relevant to each particular user are available both for efficiency and security, and an automated ID management system that integrates the source of authority and the IDP with the relevant applications as well as providing single sign on capability.
<b>Objective</b>	Design a technology solution that automates and integrates all relevant applications into a centralized location that is secure and customizable.
<b>ORE Feature/Process Alignment</b>	The Orchestrated Applications feature in the ORE is a centralized dashboard through which an end user is able to access all of their relevant applications from one location. The applications can be customized and tailored to the user through an automated process utilizing preset attributes, or manually by an Admin user. This can also utilize automated configurations for the IDP to integrate the applications with the single sign on feature so that the applications can be accessed securely and quickly from within the ORE.
<b>Alternative</b>	Microsoft 365 Suite, Google Suite (but only for their own apps) Not able to integrate non Microsoft and Google apps into hyperscale ecosystem. ORE leveraging open standards to enable Gov to integrate Gov selected open standards application into ORE ecosystem

<b>Cost</b>	

<b>Use Case</b>	<b>Managing PEO Pilots in an Agile Manner</b>
<b>Overview</b>	
<b>Objective</b>	
<b>ORE Feature/Process Alignment</b>	<p>This is one example of the Agile methodology available in the ORE. This application can be used for software development, project management – anything that lends itself to Agile management principles. There is a Kan ban board, Gantt chart, issues list (of features, bugs, tasks, deliverables), wiki, etc. That all help you prioritize tasks, personnel, and resources.</p> <p>So for the PEO Pilots, this aspect of the ORE gives the COO visibility and control over the entire process from beginning to end, and it gives an instrument that enables portfolio managers to have visibility into all the resources they've allocated for these projects so they can be cost effective and improve performance.</p>
<b>Alternative</b>	Service Now ( ORE provides these agile tools but enables flexibility Via API to integrate with another agile board as necessary.
<b>Cost</b>	

<b>Use Case</b>	<b>Integrated SCM, CI/CD Pipeline</b>
<b>Overview</b>	
<b>Objective</b>	
<b>ORE Feature/Process Alignment</b>	<p>By synchronizing applications like the Source Code repository, the Artifact repository, the Secrets repository, and the Agile Management repository, the ORE integrates the CI/CD pipeline, making the deployment of software, fixes/patches, or other resources truly a part of a modern service delivery framework. It provides a central location to store source code and images so anyone on the dev team can access them quickly, and project leads can have visibility into the entire process. For example, the automated synchronizing of the SCM repository provides the visibility necessary for project leads to ensure the code for software is healthy and secure.</p> <p>This type of integration and orchestration is necessary if you're going to have rapid deployment of software and mitigate the risks of code</p>

	failure or performance degradation and the loss of time and cost that go along with it.
<b>Alternative</b>	
<b>Cost</b>	

<b>Use Case</b>	<b>SANDE Synchronization and Source Code Health Check Analysis</b>
<b>Overview</b>	
<b>Objective</b>	
<b>ORE Feature/Process Alignment</b>	<p>This is an example of the capability of the CI/CD pipeline being put to use. We were asked to analyze the SANDE repository because there was a lack of visibility into the work. So we used the ORE to pull in the data and analyze the repository and give recommendations the gaps and vulnerabilities that are present. But this case shows how, with the ORE, instead of giving out passwords and making new accounts for everyone who needs to look into data for SANDE, the ORE can use automation and the management of machine to machine secrets to pull in relevant data for testing, and then make only that data available to others through the secure sharing features in the ORE. You could use this to give the information to other vendors as well and get more input if you wanted.</p> <p>Besides the time, cost, mobility, and resiliency benefits of synchronizing applications to the ORE, this also helps mitigate the risks of critical vulnerabilities that cause software to fail, and the risk of knowledge silos causing inefficiencies in project completion or lack of ability to repeat tasks or locate standard configurations.</p>
<b>Alternative</b>	
<b>Cost</b>	

<b>Use Case</b>	<b>Decommissioning Obsolete/Legacy Systems</b>
<b>Overview</b>	

<b>Objective</b>	Where does the Navy store network content for decommissioned applications that are required to be stored for a certain period of time due to regulations?
<b>ORE Feature/Process Alignment</b>	<p>Since the ORE has the ability to synchronize applications and data through API integration, the ORE provides a central location for extracting, storing, and archiving data from legacy applications or from applications that the Navy no longer wishes to use, and it is able to do it with data from any cloud platform. It is then retrievable if the data still needs to be used.</p> <p>This case illustrates how the ORE mitigates the risk of vendor lock and the tendency to stay with outdated solutions because of inertia. This is a huge time and cost saver, as well as fostering an environment that promotes optimization instead of stagnation, which will improve mobility and resilience.</p>
<b>Alternative</b>	
<b>Cost</b>	Many tools have not been divested and continued licenses are paid to maintain these services due to the gap in no Government system available to archive and securely share information with the proper access control.

<b>Use Case</b>	<b>Test Automation</b>
<b>Overview</b>	
<b>Objective</b>	
<b>ORE Feature/Process Alignment</b>	<p>The ORE's test automation capabilities are critical for modern service delivery.</p> <p>To have a modern CI/CD pipeline or to manage a cloud native platform, it's essential to be able to do test validation, to replicate test results, to do analysis of vulnerabilities, etc. For instance, every piece of the CI/CD process needs to be reviewed, tested, and updated, and the results need to be able to be stored in an accessible location.</p> <p>You need something that centralizes the work and gives centralized visibility into the workflow so that you can provide for the standardization and reuse of test scripts and configurations so that you can have operational resiliency.</p>
<b>Alternative</b>	
<b>Cost</b>	

Use Case	Visualization Metrics/Dashboards
Overview	
Objective	
<b>ORE Feature/Process Alignment</b>	<p>Since the ORE enables the extraction, storage, and retrievability of data, data can be configured and customized into visuals that give relevant information necessary for governance and management decision making, and enabling leadership to truly exert control over its data and technology environment whether it is managing government owned and operated systems or overseeing contractor operated systems that must integrate with the ORE.</p> <p>Without this ability to view and analyze data metrics, there's no way to effectively manage and control the many projects and processes the Navy must manage.</p>
Alternative	
Cost	

Use Case	Onboarding/Single Sign On
Overview	
Objective	
<b>ORE Feature/Process Alignment</b>	<p>Because of the ORE's ability to integrate applications, it can leverage the existing onboarding process with the ORE's capabilities. It can use the government's authoritative source of truth for ID management but use automation to populate customized features like user roles, user permissions, and relevant applications and dashboard metrics, and provide single sign on access to relevant applications.</p> <p>This is an example of how the ORE can leverage existing processes while streamlining and optimizing them for use in cloud native, API driven framework.</p>
Alternative	
Cost	

<b>Use Case</b>	<b>CAD Drawing Central Storage, Sharing</b>
<b>Overview</b>	
<b>Objective</b>	
<b>ORE Feature/Process Alignment</b>	<p>This is a specific example of the capability in the ORE for Storage, archiving, indexing and retrieval of important files (documents, images, videos, and configurations, source code, secrets).</p> <p>Engineers have a secure, central location to store CAD files so they can be accessed by those who need them. Access to these files can be customized and restricted according to user permissions in the ORE, and temporary viewing access can be given to outside users according to ORE's secure temporary sharing capability.</p> <p>This is a specific example of how the ORE improves time lost, cost, resiliency, and government control and ownership of data.</p>
<b>Alternative</b>	
<b>Cost</b>	

<b>Use Case</b>	<b>Use Case</b>
<b>Overview</b>	
<b>Objective</b>	
<b>ORE Feature/Process Alignment</b>	Databricks comparison Use Case
<b>Alternative</b>	
<b>Cost</b>	