



DAF CLOUDworks *Delivering Solutions for Mission Success*

DAFITC Education & Training Event
August 2024

Presented by:

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AF Intelligence Community (IC)
Chief Information Officer (CIO)



What is DAF CLOUDworks (DAF Cw)?



DevSecOps Platform (PaaS)

- Web-based containerized applications
- Allows for 'net-new' development directly in the managed platform
- Programs focus specifically on developing their application in an ATO, cloud-based environment

Enterprise Cloud Services (IaaS)

- Provides legacy programs a cloud environment that maintains and supports Customer's computing infrastructure
- Offers enterprise/security services to deploy direct to a secure private cloud

Multi-vendor Cloud Service Provider

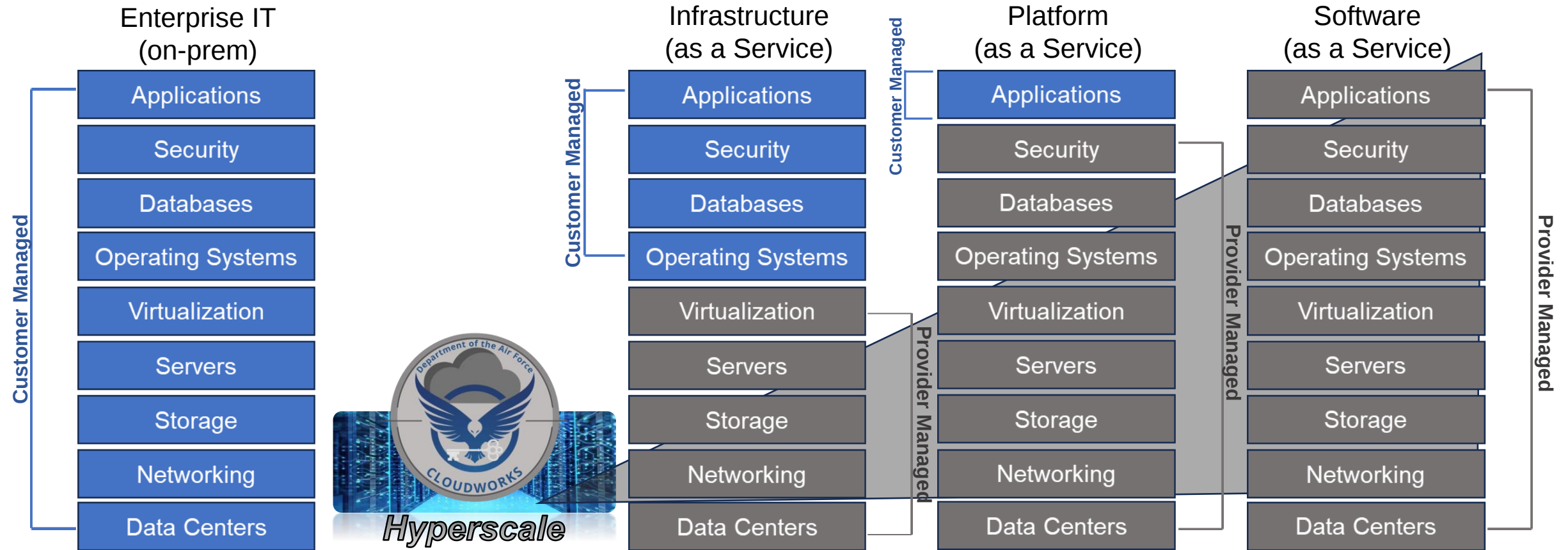
- Support C2E & JWCC
- C2E/JWCC Task Orders offered and managed at the enterprise level
- Provide complete budget oversight to customers in their respective environment



ODIN at the Edge

- Lightweight platform (PaaS) that hosts mission applications out of current cloud regions
- Provides access to services at the edge in a DDIL situation

DAF Cws in Digital Transformation





Program Offerings



Unclass Secret Top Secret SCI

Software as a Service (SaaS)

Collaboration tools to help teams organize, communicate, & share work

Unclass Secret Top Secret SCI

Platform as a Service (PaaS)

k8's Based:
Pipeline and Platform
Secret and Top Secret
Big Bang Core/Add-Ons
CSSP

CI/CD Pipelines

P1 (U) ODIN (S/TS)
or
Reciprocity through partner

Unclass Secret Top Secret SCI

Enterprise & Security Services (IaaS+)

Maintains & supports cloud computing infrastructure, including security services, to deploy direct to an AWS VPC

Enterprise Services (IaaS)

Continuous Monitoring
Anti-Virus
Cross Domain Solution
Domain Name Service
Financial Management

Unclass Secret Top Secret SCI

ODIN LITE (PaaS)

Lightweight ODIN platform for hosting mission apps at the Edge

Establish low-latency connection to CONUS region when available

Enable disconnected ops when needed

Deploys key services (authentication, patch repository, database, database sync service, DNS, virus scan) to edge nodes



Mission Benefits

CODE LOW, DEPLOY HIGH

Build once in our partners' (P1/NGA/other) unclassified DevSecOps environment and deploy to S/TS (duplicate of classified environments and automated cross domain).

CONSOLIDATED COMMON SERVICES

We have you covered from onboarding to helping define/ build your environment; a one-stop-shop for all your cloud needs.

ACCREDITATION INHERITANCE

Use our services, inherit our Common Controls. All that's left to answer for RMF is the uniqueness or your mission.

AUTOMATED DEPLOYMENT

Secure, mission driven deployments are built into our framework to enable self-service and seamless deployments.

PROACTIVE SYSTEM MONITORING & BUDGET TRACKING

Mission System Owners can see their metrics, access rules and utilize alerts to manage their cloud their way.

COMMON COMPUTING ENVIRONMENT

We provide security guardrails to tenants in a standardized manner so you can focus on your mission.

MIGRATION ASSISTANCE

Our team will work with you to understand cloud capabilities as we want to make your journey to the cloud as easy as possible.

RAPID DEPLOYMENT & SCALING

Automation scripts drastically speed up deployment, reducing manual work and human error. Add or reduce capacity based on demand.

Infrastructure as a Service



Legacy IT

MIGRATE TO...

Digital Infrastructure

- Find empty available datacenter space
- Estimate capacity requirements to grow into over the next five years until tech refresh to procure
- Find a contract vehicle or build one – contracting timeline
- Equipment delivery timeline
- Engineering of change requests and approvals, prioritization for execution
- Install, configure, integrate, secure, test, accredit
- Add to equipment inventories, logging, add to maintenance workload
- Provide to customer for use
- Start building ~ **years**

- Onboard with Cloud office
- Get added to an existing task order & provide funding
- Setup IATT or CtF for proposed work
- Build new task order
- Get accounts
- Infrastructure as Code
 - Ruthless automation
 - Serverless computing
 - Usage of Cloud Native Services
- Start building ~ **2-3 months**



SAVE TIME





Platform as a Service

Build Once, Configure, Secure, and use Pay-as-You-Go Services



THE PLATFORM IS RUN BY A TEAM MAINTAINING CAPABILITIES USED IN COMMON ACROSS TENANTS VICE EACH TENANT BUILDING, SECURING, AND MAINTAINING THOSE COMMON SERVICES EACH TIME IN A STACK OF THEIR OWN- UNIQUE SERVICES PROVIDED TO DEV TEAMS FROM THE GOVERNMENT CLOUD OFFICE



AS THE PLATFORM CONTINUES TO MATURE ADDITIONAL SERVICES ARE BEING ADDED FOR BOTH CONTAINERIZED MICRO SERVICE-BASED WORKLOADS AND IAAS BASED MONOLITHIC LEGACY APPLICATIONS



INHERITED COMMON CONTROL PACKAGES FOR ACCREDITATION, CTF PIPELINE AND REPOSITORY



COMMON TERMS AND FUNCTIONS: CI/CD PIPELINES, GITLAB RUNNERS, AGILE DEVSECOPS, IAAS+, CLOUD NATIVE SERVICES AND APPLICATIONS, SERVERLESS, MICRO-SERVICES, SAAS APPLICATIONS

ODIN Services



- | | |
|------------------------------------|--|
| • Flux/Argo CD | ✓ Automated Deployment tool |
| • ECK/EFK | ✓ Logging/monitoring aggregation of logs |
| • Prisma/Twistlock | ✓ Vulnerability Scanning |
| • Cluster Auditor | ✓ GOTS. Enforcement of OPA policies |
| • OPA Gatekeeper | ✓ Policy enforcement |
| • Prometheus/Grifana | ✓ Manage costing, sizing, limits, CPU, memory |
| • ISTIO, Kiali, Jaeger | ✓ Service mesh, routing, segmentation, mTLS |
| • Gitlab | ✓ Source code repository, CI orchestrator |
| • Keycloak, GeoAxis | ✓ Identity, and Certificate Access Manager |
| • Auth Service | ✓ Authenticates mission apps to Key Cloak |
| • Sonar Cube | ✓ Code quality, ensures good coding practices |
| • DIODE, artifact transfer service | ✓ Cross domain as a service low to high |
| • Minio | ✓ K8S storage tool- abstraction to work with all kinds of storage products |
| • Fortify | ✓ Static code analysis, dynamic, code analysis, vulnerability checker |
| • STIG enabled | ✓ OS and K8s lock down, Open SCAP |
| • Nexus | ✓ Multiple coding language libraries for classified networks |
| • Anchore | ✓ Container scanner prevents additions to Docker files post approval |
| • SD Elements | ✓ Survey tool for cyber security team checking planned app architecture |
| • Velero | ✓ Database backups |
| • Flux | ✓ Ensures apps stay running through failures |
| • D2IQ | ✓ Version of Kubernetes for container orchestration |

Data & AI/ML Platforms



- Big Data Platforms have DevSecOps pipelines and services that focus on common data layer services and user interfaces to them using IaaS, PaaS, and SaaS internal to data services integrating with external data and applications –ie ETLs using things like HADOOP, Collibra, etc.
- MLOps platforms have DevSecOps pipelines and services harnessing IaaS, PaaS, and SaaS services which are common to AI/ML activity- ie RedForce, DragonSpell, Maven, MAGE using things like Inference engines, GPUs, Tensorflow
- Apps, Data, AI/ML all integrate together to provide modern capabilities to the warfighters and analysts with industry standards and best practices made globally available with resilient software defined networks



Partnerships

- AF ISR Authorizing Official & DAF Cloud & DevSecOps Authorizing Official Reciprocity Agreement
- Platform One Reciprocity Certificate to Field
- Game Warden Reciprocity Certificate to Field
- DAF Cw Certificate to Field Process CONOPS

Customer Facing Website



NEW tools!

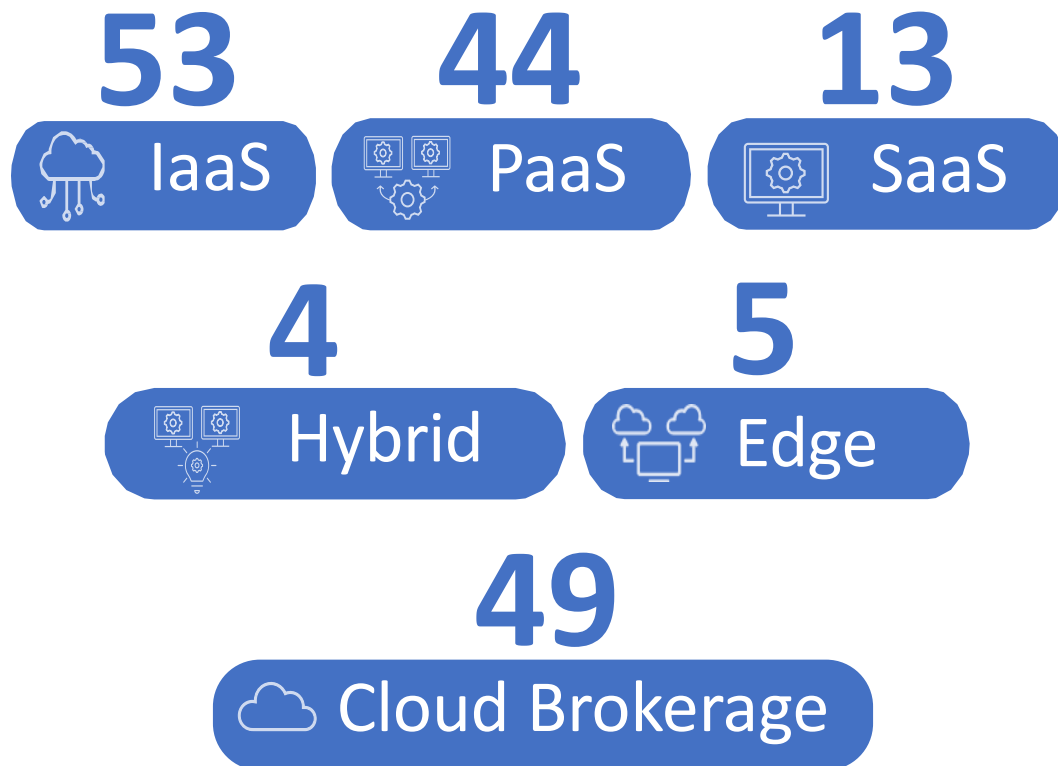
- Service offerings videos
- Demonstrations
- Onboarding tools
- 101 briefings
- FAQs

Contact us: daf.cloud.works@us.af.mil



By the Numbers

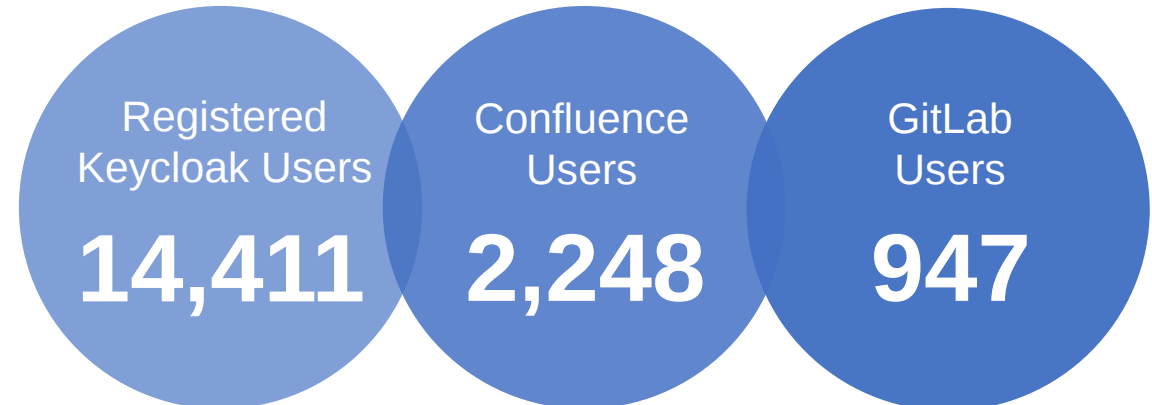
Total Active (Onboarded) Customers



ODIN Classified Delivery Services



ODIN Collaboration & User Services





A Year in Rewind

Enterprise Cloud Services

Customers can create & launch your own scans

Standard Diode implemented for a subset of Mission Data file types through Transfer Service

Lambda and EFS integration for file transfers - money & time savings

Platform and Collaboration Tools

Appgate CNAP rolled out to customers

Implemented Fortify SSO

Harbor as backing registry

Account Management

Implemented multi-partition provisioning solution causing a decreased time to provision accounts (40 hrs → 15 mins)

Multi-Region provisioning

Customer Help Desk

Optimized Help Desk ticketing system with Jira Service Management (JSM)

Enabled JSM to Mattermost notifications

Customer Engagement

Creations of DAF Cw Knowledge Base (KB)

Comprehensive and detailed description of all DAF Cw services - current & planned

Growing series of educational videos:
Onboarding process
Cost estimation
Services

Information Assurance

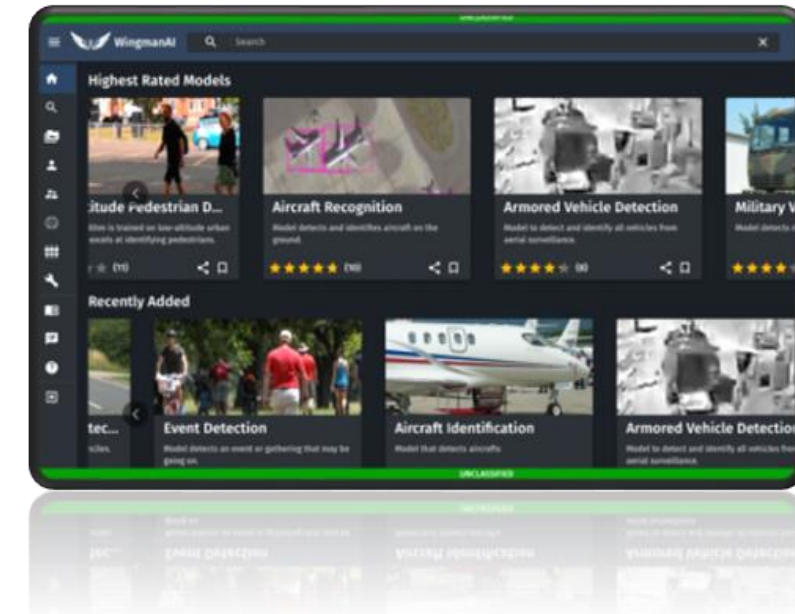
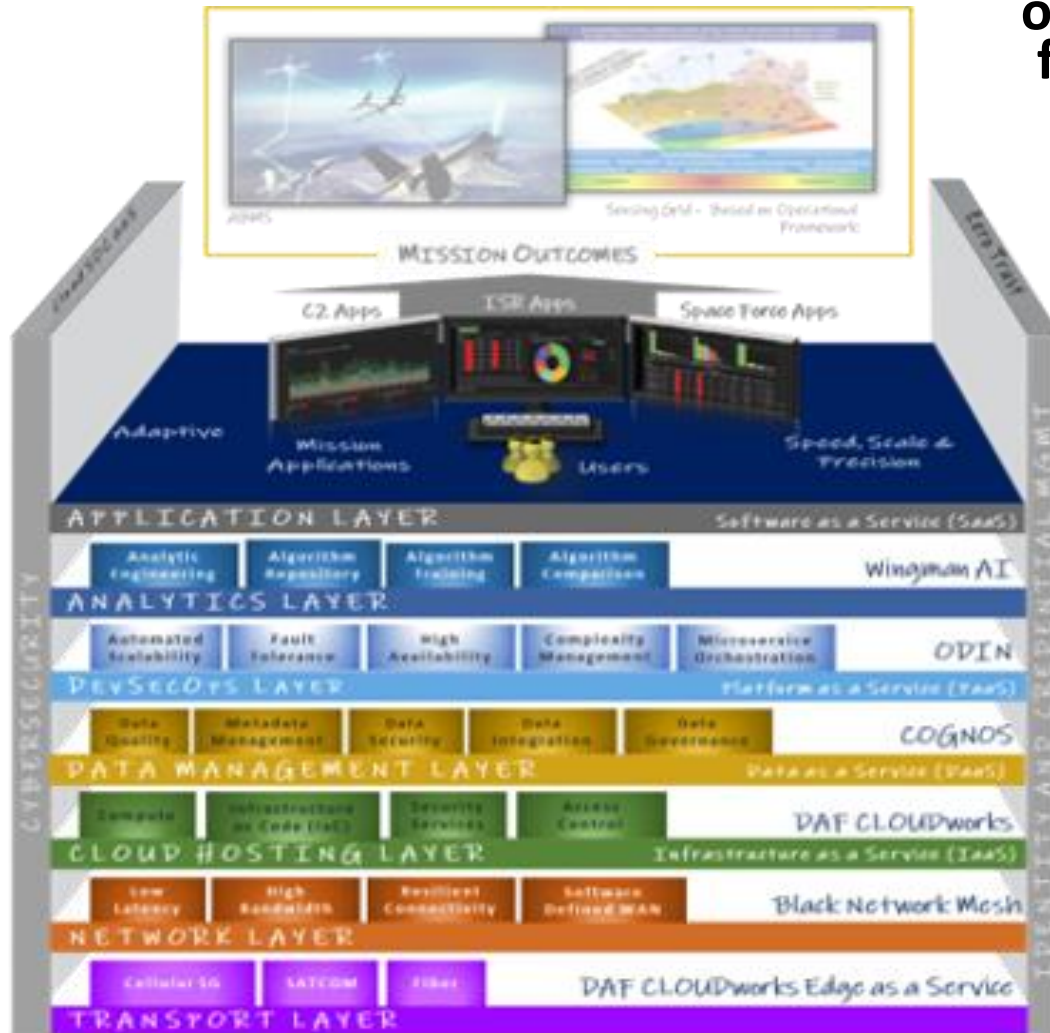
Extensive customer facing Cyber support documentation available on the DAF Cw KB

Creation of DAF Cw Certificate to Field Process

Continuous maintenance of all DAF Cw ATOs

Customer Success

AF IC Digital infrastructure provides layers of required cloud-based services & utilities for DAF users at three classification levels



redForce Operational AI

- Software tools supporting the AI/ML lifecycle including WingmanAI, FuelAI and InfinityAI

Example's of redForce Operational AI

Over 70 companies & labs
with over 125 AI capabilities in operations
across **NIPR**, **SIPR** & **JWICS** Clouds

1 Week to support Ukraine

24Feb22

Russia invades Ukraine



4Mar22 COMSAT AI developed & delivered to
USCYBERCOM, US Embassy Kyiv, USAFE, and
potentially UKR

8 months to used Every Day on JWICs

17May22

Chain of Custody Use Case



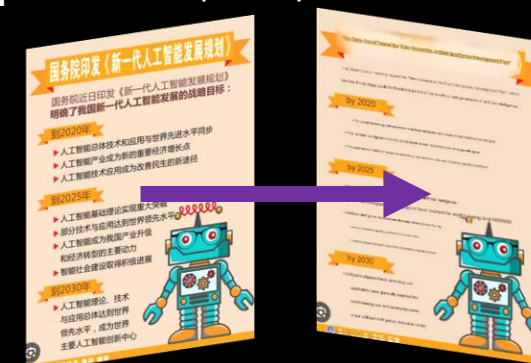
Jan23

INDOPACOM focused AI

1 Month to JWICs

6Sep23

DGS-3 (Korea) First Contact



13Oct23

Document Translation IOC on JWICs

redForce: From the first modern AI on an AF Weapons System in 2019, to a repeatable and sustainable pipeline to deliver operational AI capability responsibly at scale.

redForce

- DAF's MLOps AI Factory and Storefront of Operational AI (<https://ai.af.mil>)
- Platform used in Operations across NIPR, SIPR & JWICS

By the Numbers

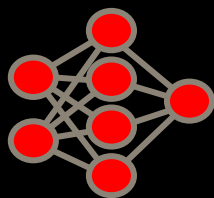
Members



310

36 Government Orgs
62 Companies

Models



144

113 Unclass
31 JWICS

Datasets



111

70 Unclass
41 JWICS

Users



600

401 Unclass
199 JWICS

DAF CLOUDWORKS CONTRIBUTION TO OPERATIONS

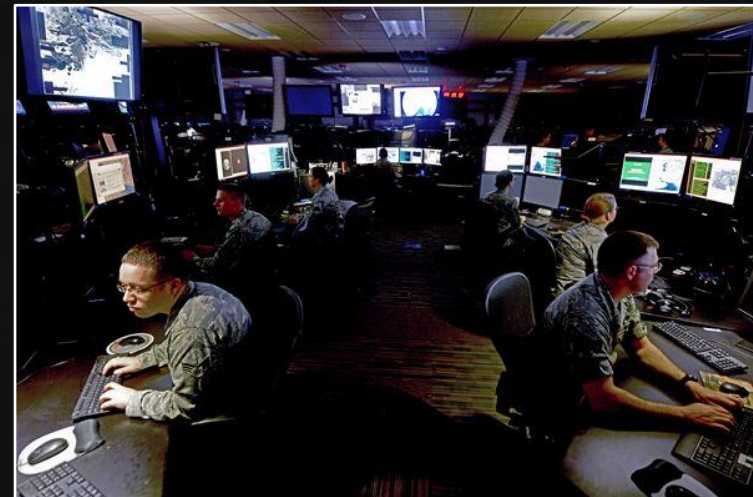
Big Wins:

- cATO and Cross-domain deployment
 - 76 versions deployed over 2 years
- No In-house maintenance on cloud architecture
- Hosting on IL-6 and JWICS
 - Approaching 7 (soon 8) PED nodes across DoD and classification levels



Big Rocks:

- Need for 24x7 support
 - Mission is 24x7, 365 supporting real-world operations
- Streamlined authentication
 - Loss of man-hours due to authentication issues
 - Keycloak is currently largest barrier to entry
- More access to platform/observability tooling
 - Ability to access log for troubleshooting/alerting when something goes wrong
 - Ability to access application metrics



Headquarters U.S. Air Force

Integrity - Service - Excellence



Questions?