

AWS State, Local, and Education Learning Days

Washington, DC



Secure Research Environment (SRE)

Accelerated Compliance & Security Framework
for Regulated Organizations

Education | Healthcare | Research | State & Local Government

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Agenda

- Secure Research Trends & Challenges
- How AWS Helps Research
- SRE Solution Overview
- SRE + SAS Message to Customers
- SRE Technical Design & Framework
- Benefits of SRE Solution
- Implementation Options
- Call to Action
- Q & A

Trends we have observed

Research is strategic for growth, recruiting and knowledge

New and different types of users need large scale computation

Sustaining on-premise while keeping pace with technology

Increasing grant requirements around secure research

How we work with researchers

Grants – Early Engagement

- Identify grants with cloud identifiable spend.

Share Results – Community Building

- AWS Summits
- Case studies, blogposts
- Workshops
- GitHub – Share cod

Accelerate time to science

- Share data – Open Data AWS, Data Exchange
- Research specific solutions
- Data egress waiver



Research Proposals

- Research proposal support
- Letters of support
- AWS related document support

Build Research on AWS

- Simplified access – SSO
- Secure infrastructure
- Get trained on AWS
- Immersion days
- Partner solutions
- AWS cloud credits for research

AWS research support services

1 Discovery & Engagement

2 Testing & Exploration

3 Building & Exploring

4 Formalization

5 Sharing & Sustainment

Research on AWS

 <p>Early Engagement Funding Grants</p> <ul style="list-style-type: none"> Identify grants from NSF/NIH and other federal funding agencies with cloud addressable components 	<p>Research Proposals Grant Shaping</p> <ul style="list-style-type: none"> Research Proposal Support Letters of Support AWS-related Document Support 	<p>Build Research on AWS</p> <ul style="list-style-type: none"> Secure Infrastructure (e.g. FedRAMP) Training for AWS systems and roles Research Webinars 	<p>Accelerate Time to Science</p> <ul style="list-style-type: none"> Share Data (Open/Restricted/Xchange) Research-specific Solutions Common Research Data Repositories 	<p>Share Results Community Building</p> <ul style="list-style-type: none"> Code Sharing - Github Workshops/Research Days Research Summits
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Independent Research on AWS

 <p>Needs Identification Partnership Formation</p> <ul style="list-style-type: none"> Cloud Readiness Assessment Complementary SME Networking Preferential access to agency-specific funding lines and resource discounts 	<p>Providing Prototyping Support</p> <ul style="list-style-type: none"> Securely-Architected Environment Credits for exploratory development Complementary managed ML services 	<p>Secure Research Environment Build-out & Monitoring</p> <ul style="list-style-type: none"> Research/Campus IT integration Research-ready Intelligent Services Compliant Research Data Repositories 	<p>Research Activity Promotion</p> <ul style="list-style-type: none"> ReInvent Preferential Access Press Releases and Promotional Activity Egress Waivers for Data Sharing 	<p>Community Education</p> <ul style="list-style-type: none"> Research Webinar Participation AWS Open Data Repositories Research Cohort Peer Training
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AWS Research Baseline Support

 <p>Commercial Value Identification</p> <ul style="list-style-type: none"> Research products market identification Executive Visioning consulting days End-scale targets & KPIs for products 	<p>Business Plan Development Institutional Alignment</p> <ul style="list-style-type: none"> Cloud-aligned business transition plans and relative documents Assessment of University pathways for IP and patent release/sharing 	<p>Enterprise Transition Planning</p> <ul style="list-style-type: none"> Commercialization Strategy Documentation Migration Calendar & Requirements Enterprise-specific Training 	<p>Commercial Re-architecture</p> <ul style="list-style-type: none"> Scalability enhancements Redundancy and Resiliency Architectural Replicability 	<p>Formal Transition</p> <ul style="list-style-type: none"> Sustainment Documentation Asset & Knowledge Transition to Commercial AWS groups
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Commercialization with AWS Research

 <p>Market Research</p> <ul style="list-style-type: none"> Industry-level Competitive Analyses Financial Accelerator Programs 	<p>Proof of Concept Generation</p> <ul style="list-style-type: none"> Pursue Grants and other Funding Establish Proof-of-Concept Prototypes Identify Technical Opportunities on AWS 	<p>Partnership Development</p> <ul style="list-style-type: none"> Capital Raising Activities R&D Partnership formalization 	<p>Productization Company Building</p> <ul style="list-style-type: none"> Identity and Financial Formalization Legal Frameworks and Agreements Staffing & Training 	<p>Enterprise Growth Market Activity</p> <ul style="list-style-type: none"> New Market Identification Thought-Leadership Activity Executive Sponsorship Building
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Independent R&D Startup Activity

Secure Research Environment (SRE)

Secure Research Challenges

- Multi-Framework Compliance & Regulations
- Complex Research Data Handling
- Continuous Security
- IT & Resource Centralization
- Network & Access Management
- Cost & Budget Tracking
- Manual Administration
- Operational Challenges
- Scalability & Elasticity

Secure Research Environment

Designed to help institutions efficiently meet NIST 800-171 Rev 2 requirements through automated security controls.

Built on LZA to provide:

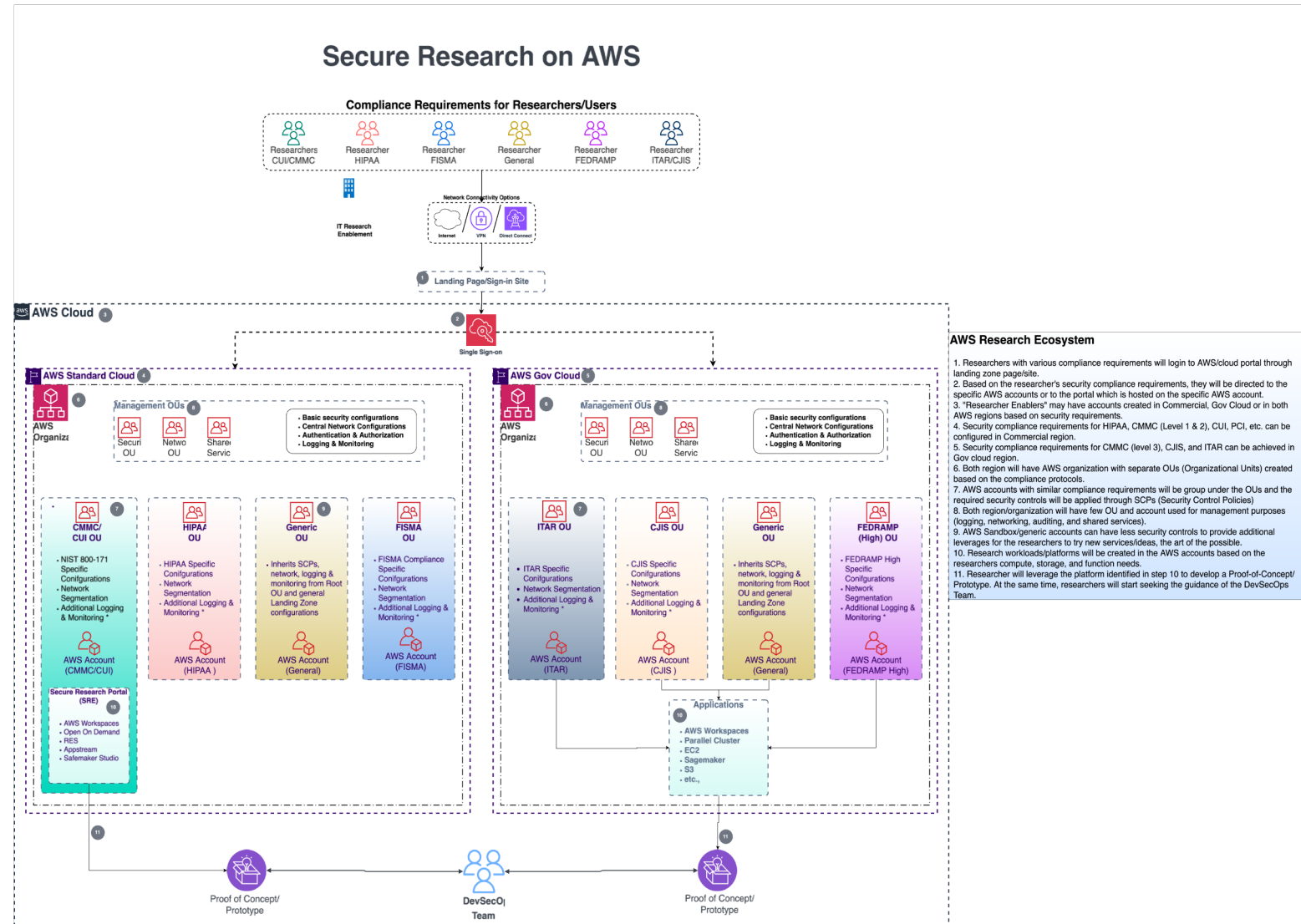
- Comprehensive NIST 800-171 compliance foundation
- Secure CUI data handling capabilities
- Multi-account security architecture

Key Features:

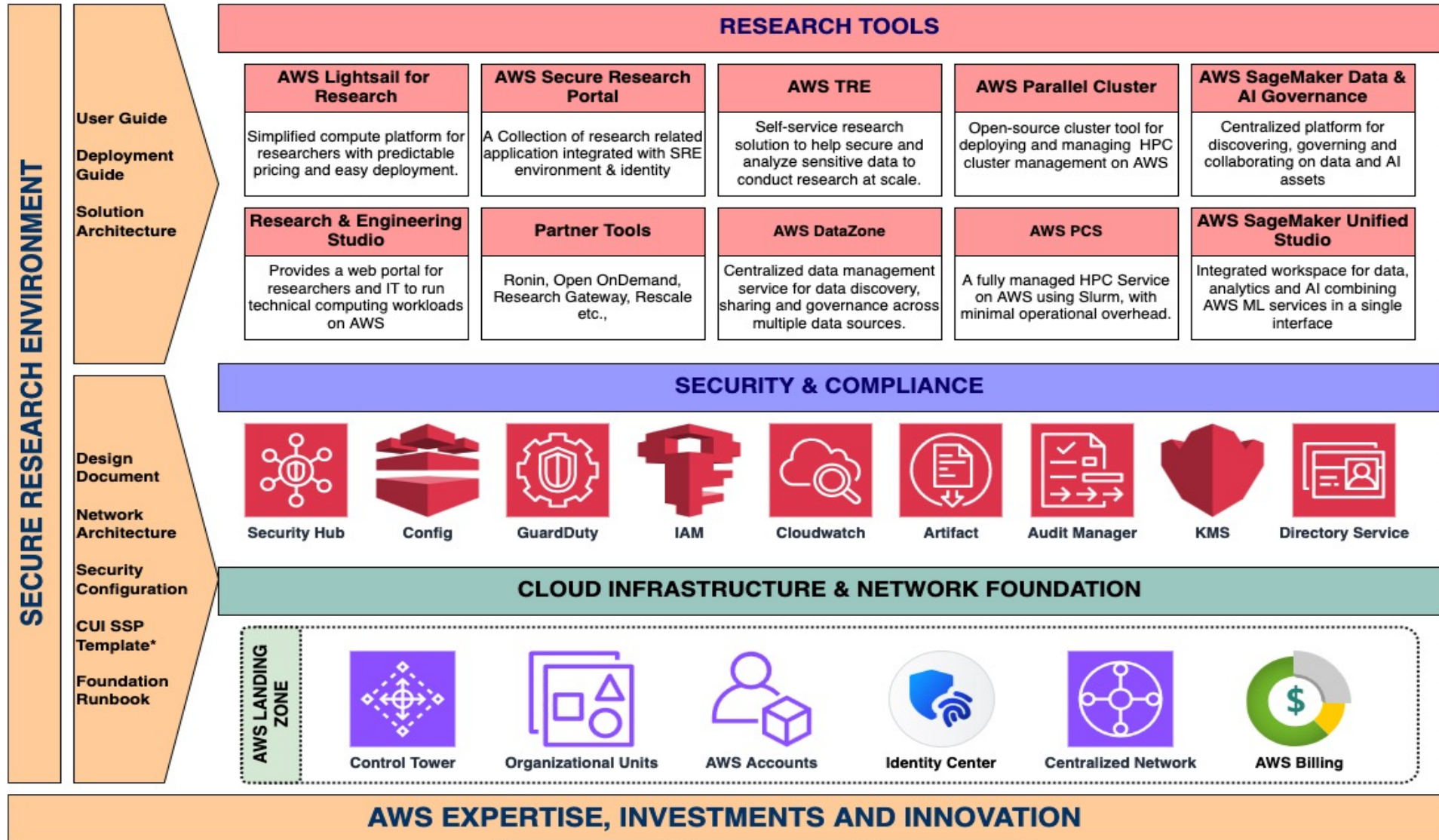
- Pre-configured security controls
- Automated compliance monitoring
- Integrated identity management
- Infrastructure-as-code deployment

Benefits:

- Rapid path to NIH mandate compliance
- Automated security guardrails
- Continuous compliance validation
- Streamlined CUI protection



Secure Research Environment Framework



Secure Research Portal

- The Secure Research Portal (SRP), integrated into the Secure Research Ecosystem (SRE), it's a landing page that simplifies AWS service access for researchers and departments, bypassing the complexity of the AWS console.
- Aimed at all disciplines that requires cluster and end-user computing and storage, such as weather, genomics, geospatial and other researcher domains. The SRP offers a user-friendly interface ensuring federal compliance, including NIST-800 standards which are inherited from SRE.

Applications (29)

Find applications by name

Amazon QuickSight	Amazon QuickSight - IDC	Amazon SageMaker Studio ...	AmazonQ
AppStream Linux	AppStream Windows	appstudio-space-a31ec0c7-...	AWS App Studio
AWS Wickr	Bedrock Studio	Bedrock-DataZone	BedrockChatbot
CodeOcean	CodeWhispererDefaultProfile	ManAccountQS	MarketingDataZone
Open OnDemand v3	ParallelCluster UI	RES-2404	RES-2406
SageMaker Canvas	SageMaker-Classical	SageMaker-DataZone	SageMaker-rc.local
Science-Datalake	Service Workbench	User Document	User Document Bot (LLM)

SRE + SAS Messaging to Customers

Secure Research Environment: Your Path to Compliance Excellence

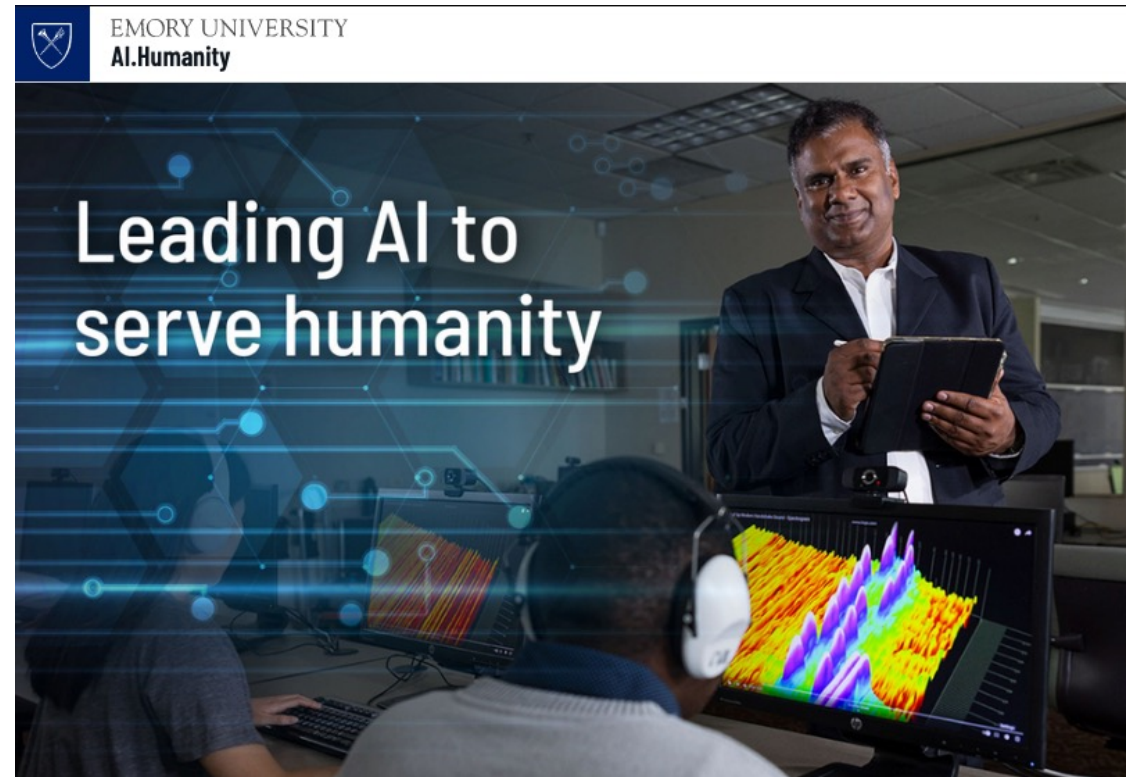
Our solution combines cutting-edge Secure Research Environment (SRE) technology with expert guidance from our Security Assurance Specialist (SAS) to streamline your institution's journey to research compliance.

- Our SAS, a former CISO and CMMC-certified auditor with federal government experience, offers unparalleled expertise in both implementation and audit requirements. We deliver a comprehensive compliance strategy that covers documentation, non-technical controls, and policy development. Our SRE deployment is tailored to meet research compliance standards while integrating seamlessly with your existing workflows. We implement robust risk management frameworks and incident response procedures to maintain your strong compliance posture.
- Our approach extends beyond initial implementation. We establish sustainable compliance programs through staff training, documentation maintenance, and continuous improvement processes. This ensures your institution remains compliant with evolving federal requirements.
- Our integrated solution combines expert guidance, proven technology, and ongoing support, offering superior results compared to standalone services. Institutions partnering with us experience faster compliance achievement, reduced risks, and improved cost efficiency.
- Our structured implementation process begins with a thorough assessment, progresses through careful planning and execution, and concludes with comprehensive validation. We then provide continuous support to maintain your compliance status.



Emory AI Humanity Initiative

- Launched in 2022 to explore the societal impacts of artificial intelligence (AI)
- Recruit 60 new faculty who infuse AI-related research and inquiry into disciplines at Emory
- AWS-powered HPC cluster with additional resources around GPU, storage, data analytics, and security (i.e. HIPAA & NIST800-171)
- Enable Emory to become a leading advocate for ethical use of AI in educational and research spaces



<https://aws.amazon.com/blogs/publicsector/emory-university-supports-ai-humanity-initiative-with-high-performance-computing-on-aws/>

Q&A

Call to Action



Review the recent AWS blog post "[Complying with updated NIH Genomic Data Sharing policies on AWS](#)" for a deeper dive on the NIH GDS policy update and AWS can help



Reach out to your AWS account team to discuss your compliance



Reach out to the AWS specialists on this presentation for further consultation.

- [John Paul Laverde \(jolaverd@amazon.com\)](mailto:jolaverd@amazon.com)
- [Venkatesan Chandrababu \(vnkcha@amazon.com\)](mailto:vnkcha@amazon.com)
- [Alexandria Burke \(awool@amazon.com\)](mailto:awool@amazon.com)





Thank you!

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Please complete the survey
for this session



Research Track

Secure Research Environment (SRE)

What is the NIH?

- National Institute of Health (NIH) is part of the U.S. Department of Health and Human Services and is the nation's largest biomedical research agency
- It is comprised of 27 Institutes and Centers, each with a specific research agenda, often focusing on particular diseases or body systems (e.g. National Cancer Institute (NCI), National Human Genome Research Institute (NHGRI) and Center for Informational Technology (CIT))
- NIH had a total Budget of ~\$47.3B in 2024; it is the largest public funder of biomedical research in the world



NIH Data Policy Update

What is changing?

National Institute of Health (NIH) has provided detailed updates for two practices under the NIH Genomic Data Sharing (GDS) Policy:

- Modernizing security standards provided in the "[NIH Security Best Practices for Controlled-Access Data Subject to the NIH Genomic Data Sharing \(GDS\) Policy](#)"
- Establishing minimum expectations for access to controlled-access data by developers

The update outlines how researchers can access and manage certain controlled data¹:

- Approved U.S. and non-U.S. users² will be required to attest to NIH that their institution and any third-party system or Cloud Service Providers involved in data analysis or storage comply with **NIST SP 800-171** or an equivalent IT security standard.
- Adherence to the new standard will be included in new or renewed Data Use Certifications or similar agreements.

When does it take effect?

The updated policy takes effect on **January 25, 2025**

Who does this apply to?

User – U.S. and Non-U.S. **NIST SP 800-171** or an equivalent IT security standard

Host - NIST SP 800-53 Moderate

Developer - submit a Developer Use Statement to the NIH [Developer Data Access Committee](#)

Notes:

¹<https://nexus.od.nih.gov/all/2024/09/23/updates-to-data-management-and-access-practices-under-the-nih-genomic-data-sharing-policy/>

²Non-U.S. users of controlled access data that are unable to align to the NIST SP 800-171 are permitted to use the ISO/IEC 27001/27002 instead.

Additional Resources: [NIH Security Best Practices for Users of Genomic Controlled Access Data Day 1](#)

Compliance Obligations for Universities



Compliance is a requirement

- With NIH GDS policy update, compliance is a key requirement for higher ed institutions
 - Universities conducting federally funded research must demonstrate compliance to maintain funding eligibility.
 - On Prem systems are subject to CMMC assessments (when applicable) 18 requirements are often evaluated in person by the auditor.
 - Specific clauses like DFARS 252.204-7012, DFARS 252.204-7019, DFARS 252.204-7020 and DFARS 252.204.7021 in defense contracts mandate compliance.
- Dept. of Ed does not explicitly mandate NIST 800-171 for all programs, Higher Ed institutions that receive funding or work on federal projects involving CUI from the Dept. of Education are expected to comply with NIST 800-171 requirements.
- Some examples that the Dept. of Ed deems to be CUI:
 - Federal Student Aid Data
 - Data related to Research Programs
 - FERPA governed data, Federal Work-Study and other Title IV Program Data
- Criminal Justice Information System (CJIS)- 13 Policy areas, 2024 Update MFA implementation.
- HIPAA- January 2025 Health and Human Services proposing new changes to the HIPAA Security Rule



Consequences of non-compliance

- Loss of access to controlled data sets
- Implications on future funding for research
- If an institution repeatedly fails to meet these requirements, it could face broader restrictions on accessing NIH controlled data across multiple research teams
- Violations of NIST 800-171 controls can result in severe consequences beyond fines, including federal lawsuits, potential loss of government contracts, and significant damage to an institution's reputation and credibility in handling sensitive information
- Department of Justice is the enforcement arm of the DoD- False Claims Act fines in the millions
- CJIS audits performed by the FBI non-compliance can be loss of access to the CJIS data
- HIPAA enforcement is done by Office of Civil Rights (OCR)- data breach can result in large fines based on negligence

Overview NIST 800-171



- NIST 800-171 is a key framework that provides guidance on protecting sensitive information, specifically **Controlled Unclassified Information (CUI)**, when it is processed, stored, or transmitted in non-federal systems. Its relevance to HCLS environments stems from the NIH GDS guidance which closely aligns with this framework and becomes effective Jan 25, 2025 for federally funded research and projects that require handling of CUI.
- The primary purpose is to safeguard CUI and ensure that non-federal entities (e.g., universities, public and private organizations including research orgs) can demonstrably secure sensitive data associated with federal contracts. This applies to organizations receiving federal funding, handling federal contracts, or working on projects involving CUI.
- NIH GDS and NIST 800-171 Common Goals: Data Security, Confidentiality, Compliance.
- Areas of Alignment: Access Control, Audit and Accountability, Data Security and Encryption, and Incident Response.

Overview NIST 800-171

- What is Controlled Unclassified Information (CUI)?
 - CUI is information the federal government considers sensitive but not classified. Examples include:
 - Research findings funded by a federal agency (NASA, NIH, DoD, Dept. of Education, Dept. of Energy, Dept. of Commerce, etc.).
 - Data related to infrastructure, healthcare, or export-controlled technologies.
 - For HCLS:
 - Clinical trials and study data, PII.
 - Sensitive student or institutional data shared with federal entities.
 - Genomics Data, Patient, and Healthcare Data.
 - Biodefense and public health data.



Key Components of NIST 800-171R2

The framework includes 110 security controls 320 objectives organized into 14 families that cover various aspects of information security. These include:

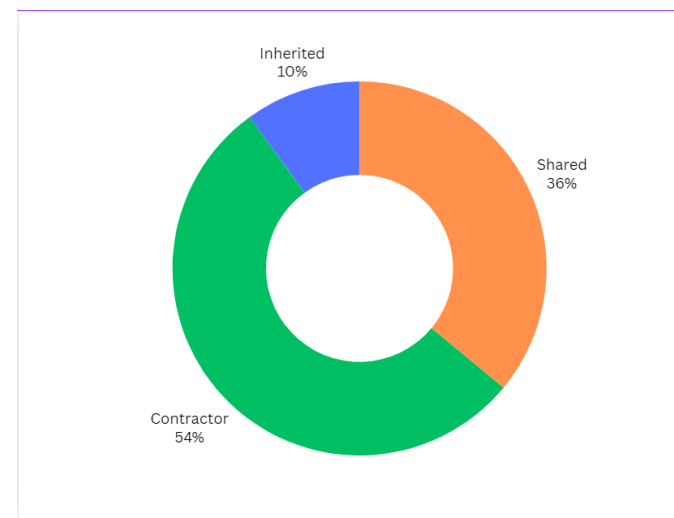
1. **Access Control** (e.g.: Restricting access to only authorized users / enabling MFA)
2. **Awareness and Training** (e.g.: Regular documented training for staff and researchers on security risks and policies)
3. **Audit and Accountability** (e.g.: Monitoring and logging system and user activity)
4. **Configuration Management** (e.g.: Ensuring secure configurations of systems and software)
5. **Incident Response** (e.g.: Detecting, reporting, and mitigating security incidents)
6. **System and Communications Protection** (e.g.: Protecting data in transit and at rest)
7. **Identification and Authentication** (e.g.: Ensure the identity of users and systems accessing resources)
8. **Maintenance** (e.g. Control tooling, techniques, and processes used to maintain systems securely)
9. **Media Protection** (e.g.: Safeguard sensitive data on physical and digital media)
10. **Personnel Security** (e.g. Ensure personnel handling sensitive information are trustworthy)
11. **Physical Protection** (e.g.: Prevents unauthorized physical access to systems and facilities)
12. **Risk Assessment** (e.g.: Identifies and evaluates potential threats, risks, and gaps in security posture.)
13. **Security Assessment** (e.g.: Monitors and evaluates the implementation of security controls)
14. **System and Information Integrity** (e.g.: Detects and addresses vulnerabilities and errors in a timely manner)

Meeting these compliance objectives requires extensive expertise, capabilities, and a robust governance infrastructure and can be a significant lift for customers to address on their own

Compliance requirements for the 14 family of controls can be addressed with AWS services and solutions and with TAM, AWS ProServ, or partner engagements

Governance and Regulatory Requirements- Domains

1. Access Control (AC)
2. Awareness & Training (AT)
3. Audit & Accountability (AU)
4. Configuration Management (CM)
5. Identification & Authentication (IA)
6. Incident Response (IR)
7. Maintenance (MA)
8. Media Protection (MP)
9. Personnel Security (PS)
10. Physical Protection (PE)*
11. Risk Assessment (RA)
12. Security Assessment (CA)
13. System & Communication Protection (SC)
14. System & Information Integrity (SI)



Key Components of NIST 800-171R3

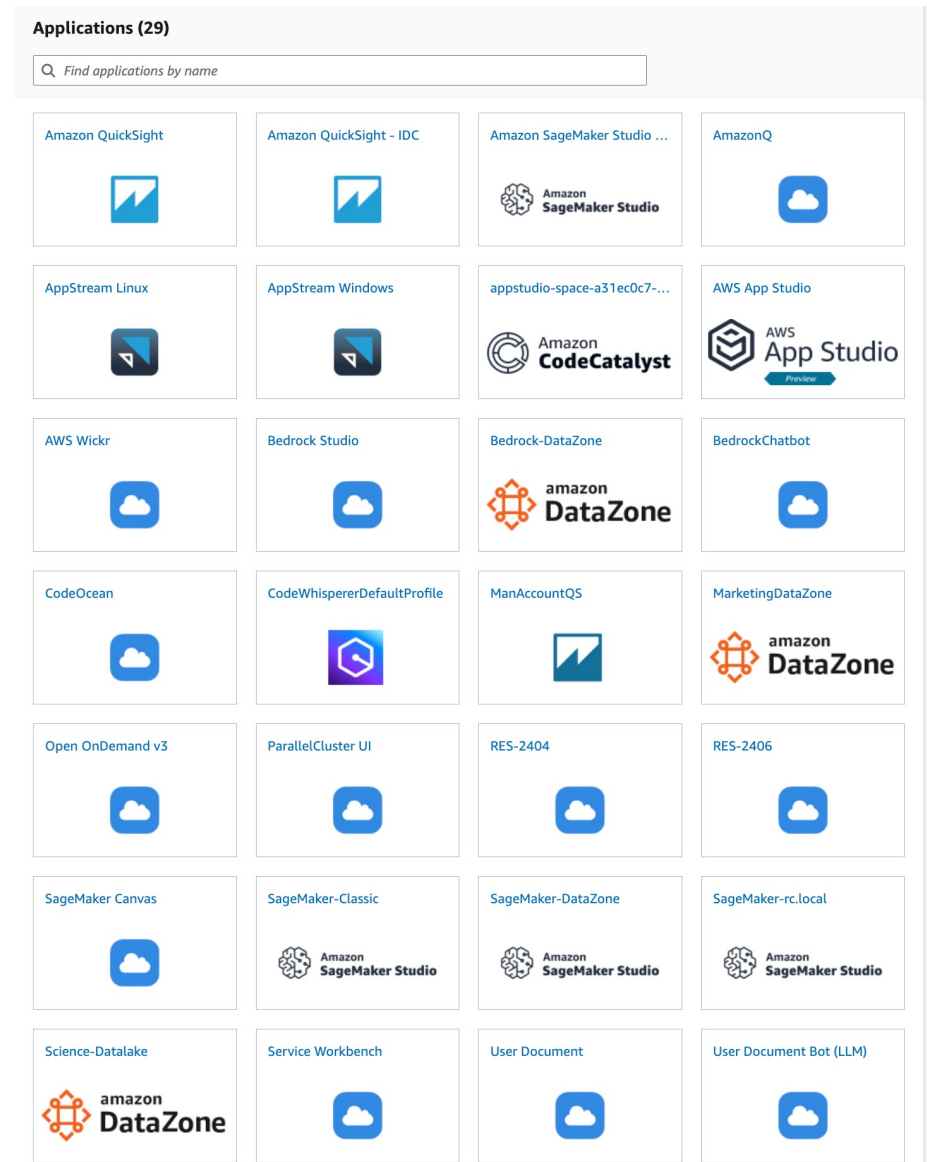
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14. **System and Information Integrity** (e.g.: Detects and addresses vulnerabilities and errors in a timely manner)
15. **Planning (e.g.: Policy, procedures, rules of behavior)**
16. **System and Services Acquisition (e.g.: SDLC, external systems, etc.)**
17. **Supply Chain Risk Management (e.g.: SCRM policy/procedures)**

Secure Research Portal

The Secure Research Portal (SRP), integrated into the Secure Research Ecosystem (SRE), it's a landing page that simplifies AWS service access for researchers and departments, bypassing the complexity of the AWS console.

Aimed at all disciplines that requires cluster and end-user computing and storage, such as weather, genomics, geospatial and other researcher domains. The SRP offers a user-friendly interface ensuring federal compliance, including NIST-800 standards which are inherited from SRE.



Key Components of NIST 800-171

Control Family	AWS Services
	IAM, VPC, SSO, MFA, NACLs
	AWS Training, Security Hub, Trusted Advisor
	CloudTrail, CloudWatch, Config
	Config, Systems Manager, CloudFormation
	IAM, Cognito, Secrets Manager, MFA
	GuardDuty, Security Hub, CloudTrail, SNS
	Systems Manager, CloudFormation
	S3, KMS, Backup
	IAM + Identity Provider Integrations
	AWS Data Center Security
	Trusted Advisor, Inspector, Well-Architected
	Security Hub, Audit Manager, CloudWatch
	KMS, ACM, VPC, Direct Connect, VPN

Controlled-access repositories implementing NIH Security Best Practices (1/2)

Repository	Access System	URL
Database of Genotypes and Phenotypes (dbGaP)	dbGaP Access System	https://www.ncbi.nlm.nih.gov/gap/
BioData Catalyst	dbGaP Access System	https://biodatacatalyst.nhlbi.nih.gov/
The NHGRI Genomic Data Science Analysis, Visualization, and Informatics Lab-Space (AnVIL)	dbGaP Access System	https://anvilproject.org/
National Cancer Institute (NCI) Genomic Data Commons	dbGaP Access System	https://qdc.cancer.gov/
Cancer Data Service (CDS)-Trusted Partner	dbGaP Access System	https://dataservice.datacommons.cancer.gov/#/home
Kids First Data Resource	dbGaP Access System	https://kidsfirstdrc.org/resources/
INvestigation of Co-occurring conditions across the Lifespan to Understand Down syndrome (INCLUDE) Data Hub	dbGaP Access System	https://portal.includedcc.org/login?redirect_path=/dashboard
Restricted Portion of Sequence Read Archive (SRA)	dbGaP Access System	https://www.ncbi.nlm.nih.gov/sra
National Institute of Mental Health Data Archive (NDA)	NDA Access System	https://nda.nih.gov/
NDA: National Institute on Alcohol Abuse and Alcoholism Data Archive (NIAAADA)	NDA Access System	https://nda.nih.gov/niaaa/
Adolescent Brain Cognitive Development Study (ABCD)	NDA Access System	https://abcdstudy.org/scientists/data-sharing/

Source: <https://sharing.nih.gov/accessing-data/NIH-security-best-practices>

Controlled-access repositories implementing NIH Security Best Practices (2/2)

Repository	Access System	URL
The Neuroscience Multi-omic Data Archive Brain/NeMo	NDA Access System	https://nemoarchive.org/data/
The CommonMind Consortium Knowledge Portal	NDA & Synapse Access Systems	https://www.synapse.org/Synapse:syn2759792/wiki/197283
PsychENCODE Knowledge Portal	NDA & Synapse Access Systems	https://www.synapse.org/Synapse:syn4921369/wiki/235539
National Institute on Aging (NIA) Genetics of Alzheimer's Disease Data Storage Site (NIAGADS)	NIAGADS Access System	https://www.niagads.org/home
Accelerating Medicines Partnership® Parkinson's Disease (AMP® PD)	AMP® PD Access System	https://amp-pd.org/
Parkinson's Disease Biomarkers Program Data Management Resource (PDBP DMR)	PDBP DMR Access System	https://pdbp.ninds.nih.gov/
PEGS: Personalized Environment and Genes Study	PEGS Access System	https://www.niehs.nih.gov/research/atniehs/labs/crb/studies/pegs
NIMH Repository and Genomics Resources (NRGR)	NRGR Access System	https://www.nimhgenetics.org/
NIDCR FaceBase	FaceBase Access System	https://www.facebase.org/

Source: <https://sharing.nih.gov/accessing-data/NIH-security-best-practices>

AWS Services for NIST 800-171 Compliance



AWS Identity and Access Management
Securely manage access to AWS services



Amazon CloudWatch
Observe and monitor resources and applications on AWS, on premises, and on other clouds



AWS Security Hub
Automate AWS security checks and centralize security alerts



AWS Config
Assess, audit, and evaluate configurations of your resources



Amazon GuardDuty
Protect your AWS accounts with intelligent threat detection



AWS CloudTrail
Track user activity and API calls



Amazon Inspector
Automated and continual vulnerability management at scale



AWS Organizations
Policy-based management for multi-account strategy on AWS



AWS Identity Center
Centrally manage workforce access to multiple AWS accounts and applications



AWS Key Management Service (KMS)
Create and control keys used to encrypt or digitally sign your data.



AWS Research and Engineering Studio (RES)
Self-service portal designed for scientists and engineers to securely access and manage their workspaces

AWS security, identity, and compliance solutions



Identity & access management

AWS Identity & Access Management (IAM)
AWS Single Sign-On
AWS Organizations
AWS Directory Service
Amazon Cognito
AWS Resource Access Manager



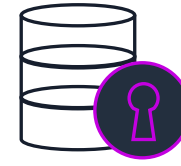
Detection

AWS Security Hub
Amazon GuardDuty
Amazon Inspector
Amazon CloudWatch
AWS Config
AWS CloudTrail
VPC Flow Logs
AWS IoT Device Defender



Infrastructure protection

AWS Firewall Manager
AWS Network Firewall
AWS Shield
AWS WAF – Web application firewall
Amazon Virtual Private Cloud (VPC)
AWS PrivateLink
AWS Systems Manager



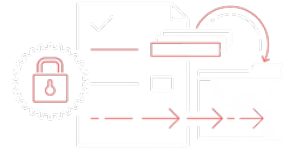
Data protection

Amazon Macie
AWS Key Management Service (KMS)
AWS CloudHSM
AWS Certificate Manager
AWS Secrets Manager
AWS VPN
Server-Side Encryption



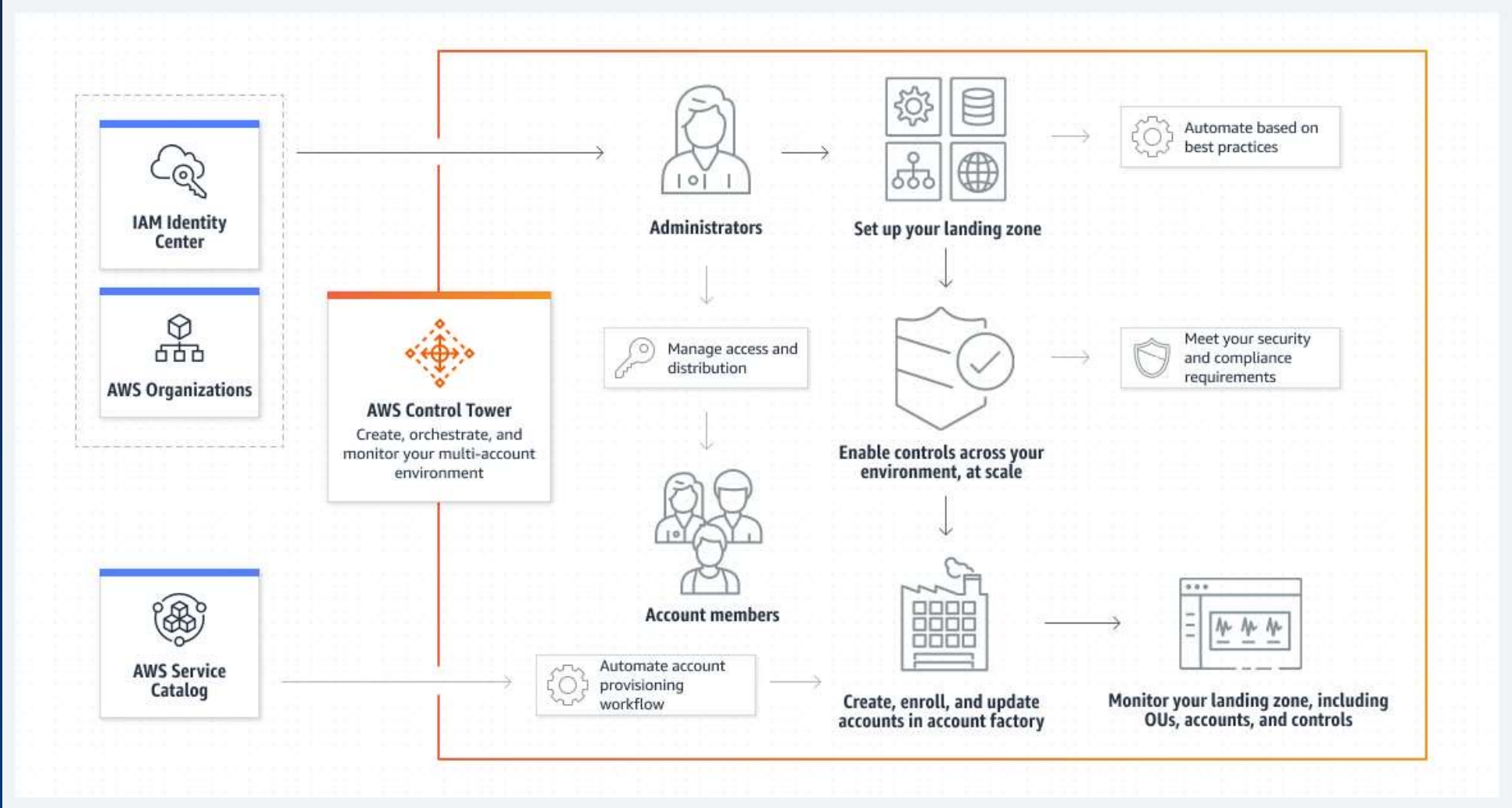
Incident response

Amazon Detective
CloudEndure DR
AWS Config Rules
AWS Lambda

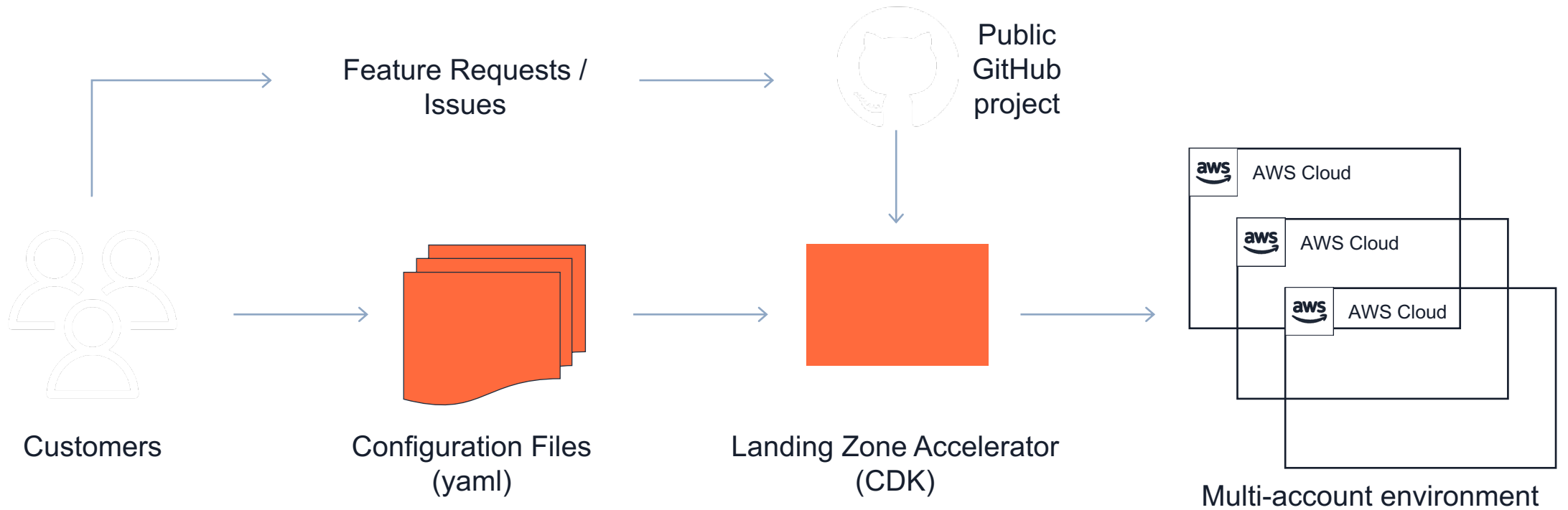


AWS Artifact
AWS Audit Manager





AWS Landing Zone – Generalized Architecture



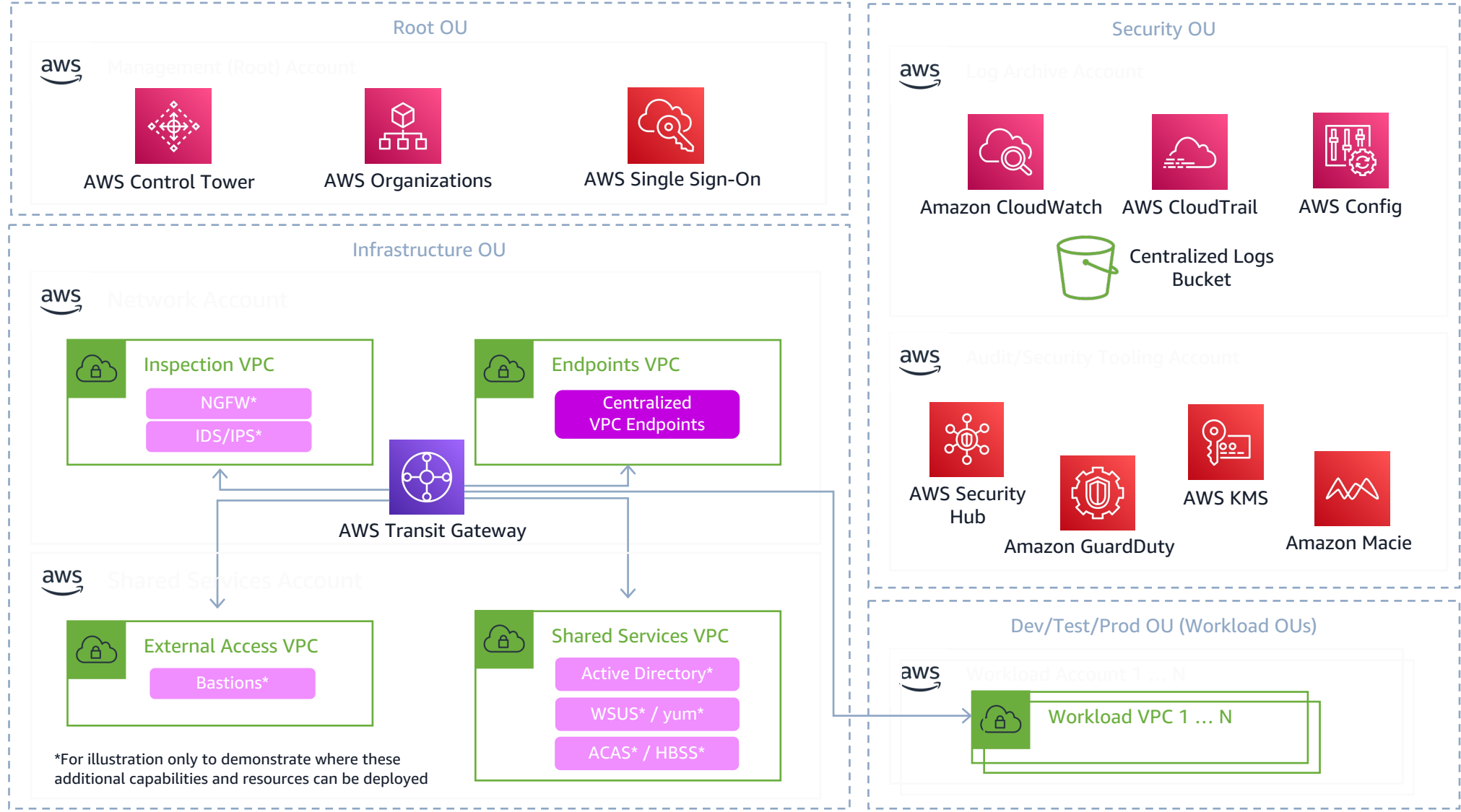
Architecture



Landing Zone Accelerator on AWS

- 1  Installation Template (AWS CloudFormation)
- 2  Configuration Files (YAML)
- 3  AWS CodePipeline
- 4  AWS CDK

Landing Zone Accelerator



*For illustration only to demonstrate where these additional capabilities and resources can be deployed



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- Launched in 2022 to explore the societal impacts of artificial intelligence (AI)
- Recruit 60 new faculty who infuse AI-related research and inquiry into disciplines at Emory
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<https://aws.amazon.com/blogs/publicsector/emory-university-supports-ai-humanity-initiative-with-high-performance-computing-on-aws/>



Children's Hospital of Philadelphia - FPGA

Fastest-Ever Analysis Of 1,000 Genomes

1,000 diverse pediatric genomes were processed into useable data files in two hours and twenty-five minutes



World Record for processing Genomes using FPGAs

Deployed on 1,000 Amazon EC2 F1 instances

One of the largest cohorts for this demographic that has been sequenced to date

Utilized Edico Genome's DRAGEN™ Genome Pipeline



Secure Research Environment

Problem

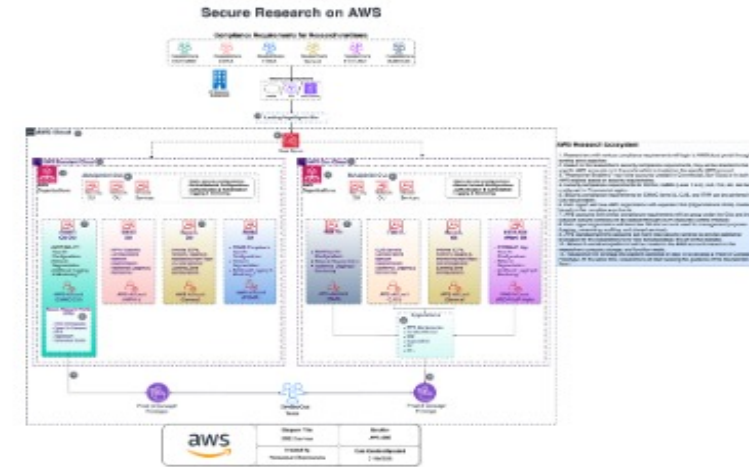
In today's digital landscape, academic institutions and their researchers, funded by organizations like the Department of Defense (DoD), the National Institutes of Health (NIH), and the National Science Foundation (NSF), face a growing need to establish secure research environments that meet stringent compliance requirements. Initiatives such as the Cybersecurity Maturity Model Certification (CMMC), implemented by the DoD, and the NIH's Information Security Program (ISP), underscore the importance of robust cybersecurity practices and protection of sensitive data.

Benefits of Solution

The Secure Research Environment on AWS Leverages AWS's advanced infrastructure and compliance capabilities, institutions can establish a comprehensive approach that encompasses data protection, access controls, and cybersecurity measures. This approach enables them to effectively address the specific compliance obligations mandated by funding agencies

THE NEED

ARCHITECTURE DIAGRAM



Approach

Delivering an AWS Secure Research Environment requires a comprehensive approach that involves various stakeholders and interdependencies. This environment is built upon the collaboration between AWS Utilities, AWS Builders (including CAT, ProServe, Partners, and Customers), Customers' responsibilities, and Vendors (such as EDU Resellers and 3rd Party assessors).

SOLUTION



TARGET PERSONAS

Organization Type

- Higher Education Institutions
- Nonprofit organization (NPO)
- State and Local Government (SLG)
- Defense Integrated Business Systems (DIBS)

Primary (Decision Makers)

- CIO
- CISO
- CTO

Secondary (Influencers)

- VP of Research
- Director of Research Computing

KEY BUILDERS

- ProServe (including CAT when needed)
- StackArmor
- Bladestack

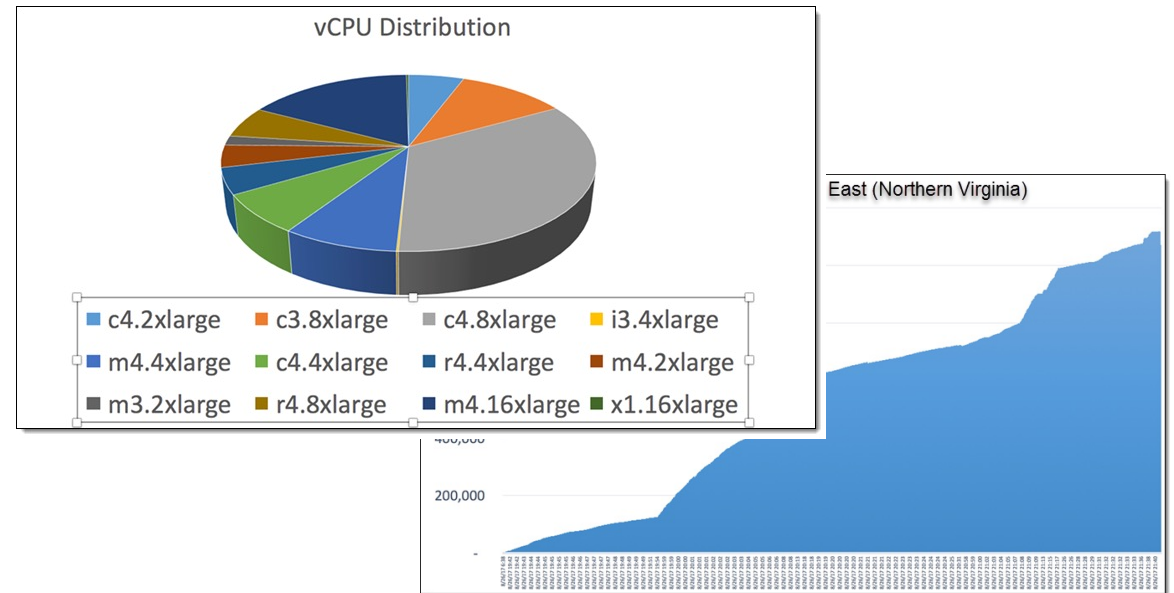
Technology

- **Infrastructure:** The initial phase focuses on setting up the core infrastructure of the AWS Secure Research Environment. This involves creating a foundational environment that includes essential services such as Virtual Private Cloud (VPC), Identity and Access Management (IAM), and network security controls. The core infrastructure provides a secure and scalable foundation for the subsequent enclaves or OUs.
- **Organizational Units:** OU is created to meet the compliance requirements set forth by regulations such as NIST Special Publication 800-171 and HIPAA. This enclave/OUs implements additional security controls such as data encryption, access restrictions, and continuous monitoring.

Clemson University - Natural Language Processing

The researchers conducted nearly half a million topic modeling experiments to study how human language is processed by computers.

The 1.1 Million vCPU count usage is comparable to the core count on the largest supercomputers in the world.



[Amy Apon](#)

AWS US Regions Infrastructure

US Intelligence Community (IC) Sponsored

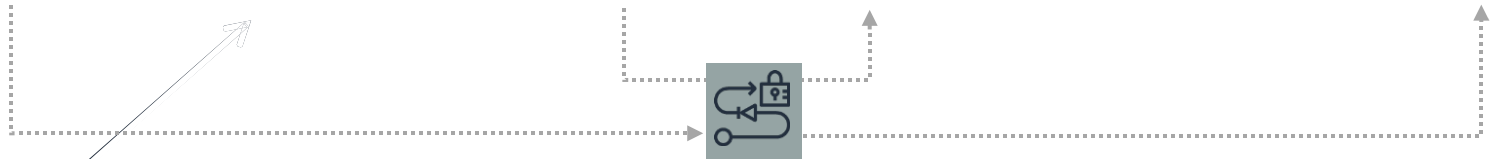


FedRAMP - Mod
DoD SRG - IL2

FedRAMP - High
DoD SRG - IL 2, 4, & 5

DoD SRG - IL 6
ICD 503

ICD 503



Internet



NIPRNET/
Customer Network

CAP/DX

Mission
Networking



Secret Networks

ICWAN/
SIPRNet
Peering

JWICS
Peering

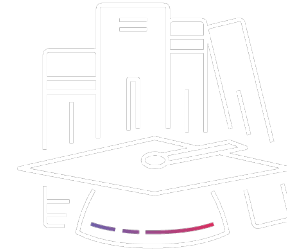
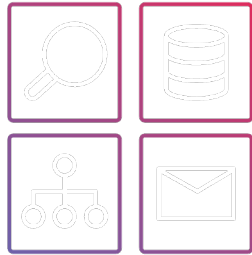


Top Secret Networks

Hosted DX

Mission
Networking*
(Target 2025)





AWS provides the
broadest and deepest
solutions for research
globally

We provide common
research tools,
cluster technologies,
and solutions for
security and
compliance

We have experts who
understand your
research needs

The AWS ML stack

Broadest and most complete set of machine learning capabilities

