

TDIU Report Service: AWS Implementation Plan with Revenue Stream Expansion

Executive Summary

This document outlines the AWS implementation plan for the TDIU Report Service, a HIPAA-compliant solution for generating Total Disability Individual Unemployability (TDIU) reports for veterans' attorneys. The solution leverages AWS services including S3, Lambda, Bedrock (Claude AI), and Amplify to create a secure, scalable, and efficient system for document intake, analysis, and report generation. The plan includes a phased approach to expand from the core TDIU report service to additional revenue streams, creating a comprehensive service ecosystem.

Core Architecture

Security Foundation

- **AWS Business Associate Agreement (BAA):** Legal protection through shared responsibility
- **Military-grade Encryption:** AES-256 encryption for all data at rest and in transit
- **Comprehensive Audit Trails:** Complete logging via CloudTrail for HIPAA compliance
- **Access Controls:** Role-based access with principle of least privilege

AWS Service Components

1. Document Storage (AWS S3)

- **Three initial secure buckets:**
 - `tdiu-document-storage`: For client-uploaded documents
 - `tdiu-templates`: For report templates
 - `tdiu-completed-reports`: For finalized reports
- **Security Configuration:**
 - Block all public access
 - Server-side encryption with AES-256
 - Versioning enabled
 - Appropriate bucket policies and access controls
 - Lifecycle policies for cost optimization

2. Document Intake (Custom Solution)

- **AWS Amplify Frontend:**
 - Secure attorney login portal
 - User-friendly upload interface
 - Status tracking and notifications
 - Responsive design for all devices
- **Direct S3 Uploads:**
 - Pre-signed URLs for secure file uploads
 - Support for large files (up to 200MB)
 - Chunked uploads with progress indicators
 - Resumable upload functionality
- **Metadata Collection:**
 - Case information alongside uploads
 - Structured organization in S3
 - Appropriate file tagging

3. Document Processing (AWS Lambda)

- **Key Lambda Functions:**
 - `TDIU-GenerateUploadUrl`: Generates secure pre-signed URLs for uploads
 - `TDIU-CreateCase`: Manages case creation and organization
 - `TDIU-DocumentProcessor`: Handles document preprocessing and AI analysis
- **Event-driven Architecture:**
 - Functions triggered by S3 upload events
 - Status notifications to administrators
 - Workflow orchestration

4. AI Analysis (AWS Bedrock with Claude)

- **Claude 3.7 Sonnet Integration:**
 - HIPAA-compliant document analysis
 - Medical terminology extraction
 - Identification of limitations and conditions
 - Employment history analysis
 - Evidence organization

- **Human Review Integration:**
 - AI-assisted analysis with human expert review
 - Quality assurance workflow

5. User Management (Amazon Cognito)

- **Authentication:**
 - Secure user management
 - Multi-factor authentication (MFA)
 - Role-based access control
- **Integration:**
 - Seamless connection with Amplify frontend
 - Secure session management

6. Client Portal (AWS Amplify)

- **Secure Interface:**
 - Professional attorney dashboard
 - Document upload functionality
 - Case tracking and status updates
 - Report access and download
- **Mobile Responsiveness:**
 - Optimized for all device sizes
 - Consistent experience across platforms

Multi-Service Implementation Strategy

The implementation is designed to start with the core TDIU report service, then expand to additional revenue streams using the same secure AWS infrastructure. This approach allows for:

1. Faster time-to-market with the primary service
2. Reuse of core infrastructure components
3. Gradual expansion based on client feedback
4. Diversified revenue to mitigate volume fluctuations
5. Enhanced value proposition through complementary services

Revenue Stream Expansion Plan

Phase 1: Core TDIU Report Service (Months 1-3)

- Complete initial AWS implementation
- Launch TDIU report generation service
- Establish client base and gather feedback
- Refine AI prompts and report templates

Phase 2: Document Analysis Service (Months 3-5)

- **Service Overview:** AI-assisted analysis and organization of complex medical records
- **AWS Components:**
 - Enhanced Claude prompts for document classification
 - New Lambda functions for document organization
 - Additional S3 bucket for organized document libraries
 - Updated Amplify interface for document library access
- **Implementation Steps:**
 1. Develop document classification system
 2. Create searchable document library structure in S3
 3. Implement document metadata extraction
 4. Build document library interface in Amplify
 5. Integrate with existing authentication system

Phase 3: VA Brief Templates (Months 5-8)

- **Service Overview:** Library of customizable legal brief templates with effective language and citations
- **AWS Components:**
 - Template storage and management in S3
 - Lambda functions for template customization
 - DynamoDB for template management
 - Amplify interface for template browsing and selection
- **Implementation Steps:**
 1. Create template storage structure in S3
 2. Develop brief template format and variables
 3. Build template customization engine using Lambda
 4. Implement DynamoDB for template metadata

5. Extend Amplify interface for template management
6. Add analytics to track template usage and effectiveness

Phase 4: Medical Terms Translation Service (Months 8-11)

- **Service Overview:** Translation of complex medical terminology into VA-relevant language
- **AWS Components:**
 - Specialized Claude prompts for medical translation
 - Lambda functions for term processing
 - DynamoDB for terminology database
 - SQS for processing queue management
- **Implementation Steps:**
 1. Build medical terminology database
 2. Develop specialized Claude prompts for translation
 3. Create Lambda functions for term processing
 4. Implement term lookup and processing queue
 5. Extend Amplify interface for translation service
 6. Add batch processing capabilities for documents

Phase 5: VA Claims Training Program (Year 2)

- **Service Overview:** Online training program for attorneys on VA claims strategy
- **AWS Components:**
 - S3 for content storage
 - CloudFront for content delivery
 - Lambda for user management
 - DynamoDB for progress tracking
 - Cognito for authentication
- **Implementation Steps:**
 1. Design learning management architecture
 2. Develop content delivery system
 3. Create progress tracking database
 4. Build completion certification system
 5. Implement payment processing integration

6. Extend Amplify interface for learning platform

Phase 6: VA Decision Database (Year 2-3)

- **Service Overview:** Searchable database of anonymized VA decisions with success patterns
- **AWS Components:**
 - DynamoDB for decision database
 - Lambda for search functionality
 - SageMaker for pattern analysis
 - CloudSearch for advanced queries
- **Implementation Steps:**
 1. Design database schema for decisions
 2. Develop data ingestion pipeline
 3. Create search and filtering capabilities
 4. Implement pattern analysis using SageMaker
 5. Build visualization components
 6. Extend Amplify interface for database access

Technical Integration Strategy

Shared Infrastructure Components

All services will leverage these core components to maintain security and efficiency:

1. **Security Framework:** Consistent security controls across all services
2. **Authentication System:** Single Cognito implementation for all services
3. **User Interface:** Integrated Amplify frontend with service-specific modules
4. **AI Processing:** Shared Claude integration with service-specific prompts
5. **Data Storage:** Consistent S3 structure with service-specific buckets

Service-Specific Extensions

For each new service, the implementation will include:

1. **Database Extensions:** Service-specific tables or buckets
2. **Lambda Functions:** Service-specific processing logic
3. **Claude Prompts:** Specialized AI prompts for each service

4. **UI Components:** Service-specific interface elements
5. **Analytics:** Service-specific usage and performance tracking

Implementation Timeline

Phase 1: TDIU Report Service Foundation (Weeks 1-4)

- AWS account creation and BAA execution
- S3 bucket configuration with security settings
- CloudTrail setup for compliance logging
- Initial Lambda function development
- Bedrock access configuration for Claude AI
- Document intake system with Amplify frontend

Phase 2: TDIU Report Service Completion (Weeks 5-8)

- Complete AI integration for document analysis
- Finalize report generation workflow
- Implement quality assurance process
- Develop client portal for report delivery
- Test end-to-end system with sample documents
- Prepare for initial service launch

Phase 3: Document Analysis Service (Months 3-5)

- Develop document classification system
- Create searchable document library architecture
- Implement document metadata extraction
- Build document library interface
- Test with existing client documents
- Launch as second service offering

Phase 4: VA Brief Templates (Months 5-8)

- Develop template storage and management system
- Create template customization engine
- Build template browsing and selection interface

- Test with sample templates and client scenarios
- Launch as third service offering

Phase 5: Medical Terms Translation (Months 8-11)

- Build medical terminology database
- Develop specialized AI prompts for translation
- Create term lookup and processing interface
- Test with complex medical terminology
- Launch as fourth service offering

Phase 6: Subsequent Services (Year 2+)

- VA Claims Training Program development
- VA Decision Database implementation
- Integration of all services into unified platform
- Advanced analytics and business intelligence

Cost Evolution Model

As services expand, AWS costs will scale efficiently:

Initial Implementation (TDIU Reports Only)

- AWS S3: \$5-10/month
- AWS Bedrock (Claude): \$18-25/month
- AWS Amplify: \$5-10/month
- AWS Security Services: \$1-3/month
- Total Monthly: \$29-48/month

Full Service Implementation (Year 3)

- AWS S3: \$15-30/month (increased storage)
- AWS Bedrock (Claude): \$50-80/month (more prompts)
- AWS Amplify: \$10-20/month (more traffic)
- AWS Lambda: \$10-20/month (more functions)
- DynamoDB: \$10-20/month (databases)
- Other AWS Services: \$15-30/month

- Total Monthly: \$110-200/month

Even at full implementation, AWS costs remain well below 1% of projected revenue.

Success Metrics

Phase 1 (TDIU Reports)

- Successfully process 20+ reports per month
- Maintain 99.9%+ system uptime
- Achieve <2% error rate in document processing
- Establish 95%+ client satisfaction rating

Subsequent Phases

- Each new service reaches 50% adoption rate among existing clients
- Cross-service usage increases by 20% with each new service
- Revenue per client increases by 30% with each additional service
- Overall revenue fluctuation decreases by 15% after implementing 3+ services

Conclusion

This phased implementation plan creates a robust, scalable platform that starts with the core TDIU report service and systematically expands to offer a comprehensive service ecosystem. By leveraging shared AWS infrastructure components, each new service can be implemented more efficiently while maintaining the highest security and compliance standards. This approach addresses concerns about revenue stability through diversification while creating a stronger value proposition for clients.