FREEDOM AI

ANSER Architecture

February 2025

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Problem Statement Breakdown

Information in the form of digital data has become the foundation on which our US National Security, DOD Commands and IC Agencies base their decisions. The proper collection, analysis, and usability of timely, accurate and relevant data can mean the difference between mission success and failure.
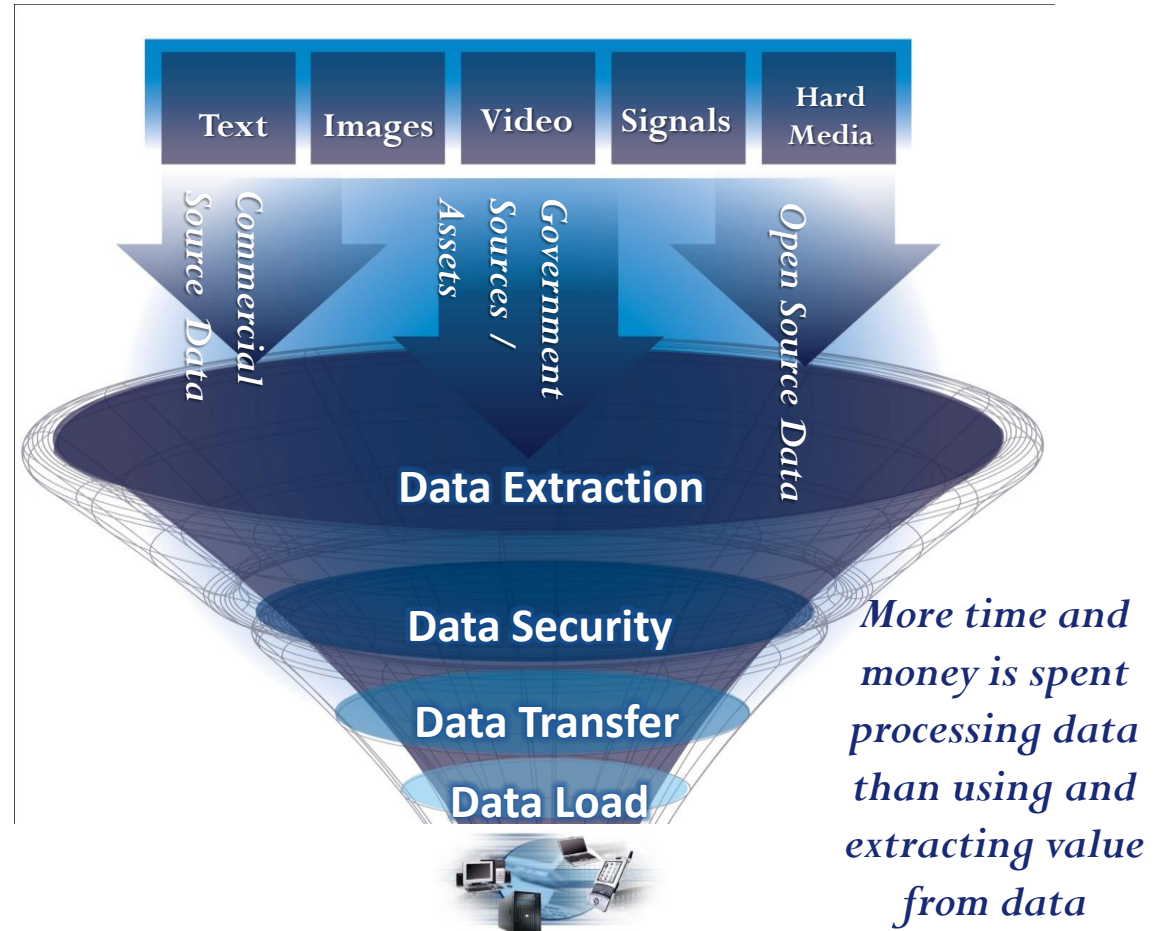
Today new sources and types has created a data deluge that grows exponentially each day.

Problem #1 - The National Security, IC and DOD are not able access the right data at the right time to perform exploitation/analysis to make correct decisions.

Data Management is a continual, growing and unsolved problem area

Problem #2 – Data processing (extracting, Securing, maintaining, transferring, and loading data) is ineffective, inefficient and costly, taking valuable time and resources away from analyzing and pulling value from the data.

Data Management is a growing cost driver with diminishing value/ROI

More time and money is spent processing data than using and extracting value from data

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ANSER Technology Overview

ANSER is purpose built to fit into any existing enterprise or data ecosystem as the central point that connects the data sources/suppliers, data libraries/storage, software/tools and data users/consumers. ANSER matures any data management environment providing insight into the entire data supply chain.

Strategy. ANSER is meant to serve as the central point between the four elements in any data ecosystem, the Data Sources, Data Libraries, Tools/Software, and Data Users. With ANSER the end-to-end data supply chain comes into focus and data management matures

System. ANSER is fully cloud native, security compliant to work within all IC/DOD domains, and designed in the around an Open-Source Software baseline, open API standards, micro services and open interfaces making it able to integrate seamlessly into any enterprise or data ecosystem.

Solution. ANSER enhances and matures any data ecosystem by ensuring all data holdings regardless of type are accessible, secure, compliant, complete, accurate and able to consumed by any authorized users including machine to machine AI/ML..

Data management <u>maturity</u> is the key to extracting value from data
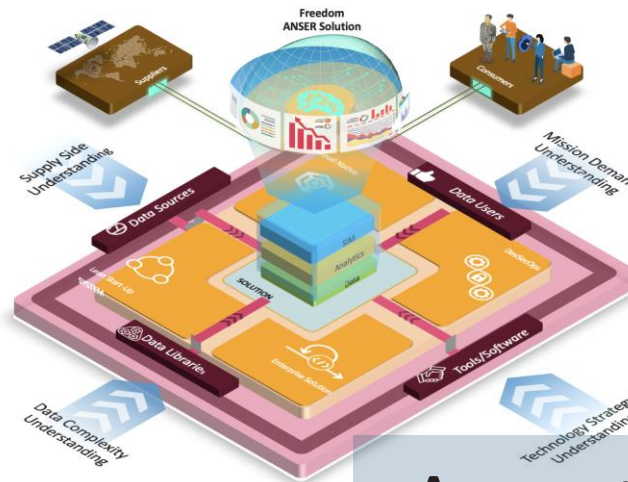
AI-Powered
Needs-
Suppliers
Exchange and
Reporting

ANSER addresses the following:
Where is my data?
Who is using my data?
What data is being consumed most?
What data is being consumed least?
What data is never consumed?
Who is providing me good data?
Who is providing me bad data?
How much storing my data cost?
How much does processing my data cost?
How many copies of data do I have?
Who is the most active consumer of data?
Who is the least active consumer of data?
When is my data being consumed?
How is my data being consumed?

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ANSER Ensures Data Provides Value

Data management maturity is the key to extracting value from data

CORE PRODUCT OFFERING

PROSERV OFFERINGs

ANSER provides a clear path to data management maturity ensuring data is not a burden ensures and the value of an organizations data is maximized. Comprised of five core elements, ANSER enhances and automates the data processes that needlessly consume resources, time and money preventing data from providing true value and positive impact on mission.

Access Data

Ensures full access to all data holdings

ANSER continually and automatically extracts and indexes all metadata from all content provide a single Data Catalog that maintains and tracks all data across all content holdings. Using PKI enabled FGAC, RBAC and ABAC, ANSER ensures all content is discoverable, editable and retrievable in-compliance with an organizations Identify and Access Management (ICAM) policies and guidelines

Secure Data

Ensures all data is properly classified and secure

Immediately upon data ingest all data is automatically security tagged and labeled with the proper classification at the product, file, object and attribute level before any user or machine sees it or is able to interact with the content. This preemptive classification aligns with the US Federal security directives and National Security, IC and DOD classification guidelines

Complete Data

Ensures of all data is correct and compliant with all data standards

Data Conditioners automatically correct, normalize, standardize, and tag all data to compile with organizational data standards whether those or custom built or MILSPEC, ISO, OGC, NSG, etc.

Accurate Data

Ensures the most accurate data through the merging of

Automated data extraction and conditioning merges the best attributes from multiple data source into a singular most accurate version of truth.

AI/ML

Enables AI/ML Integration

Cloud native, Open-Source Software baseline, open API standards, micro services seamlessly integrates with any AI/ML mission systems

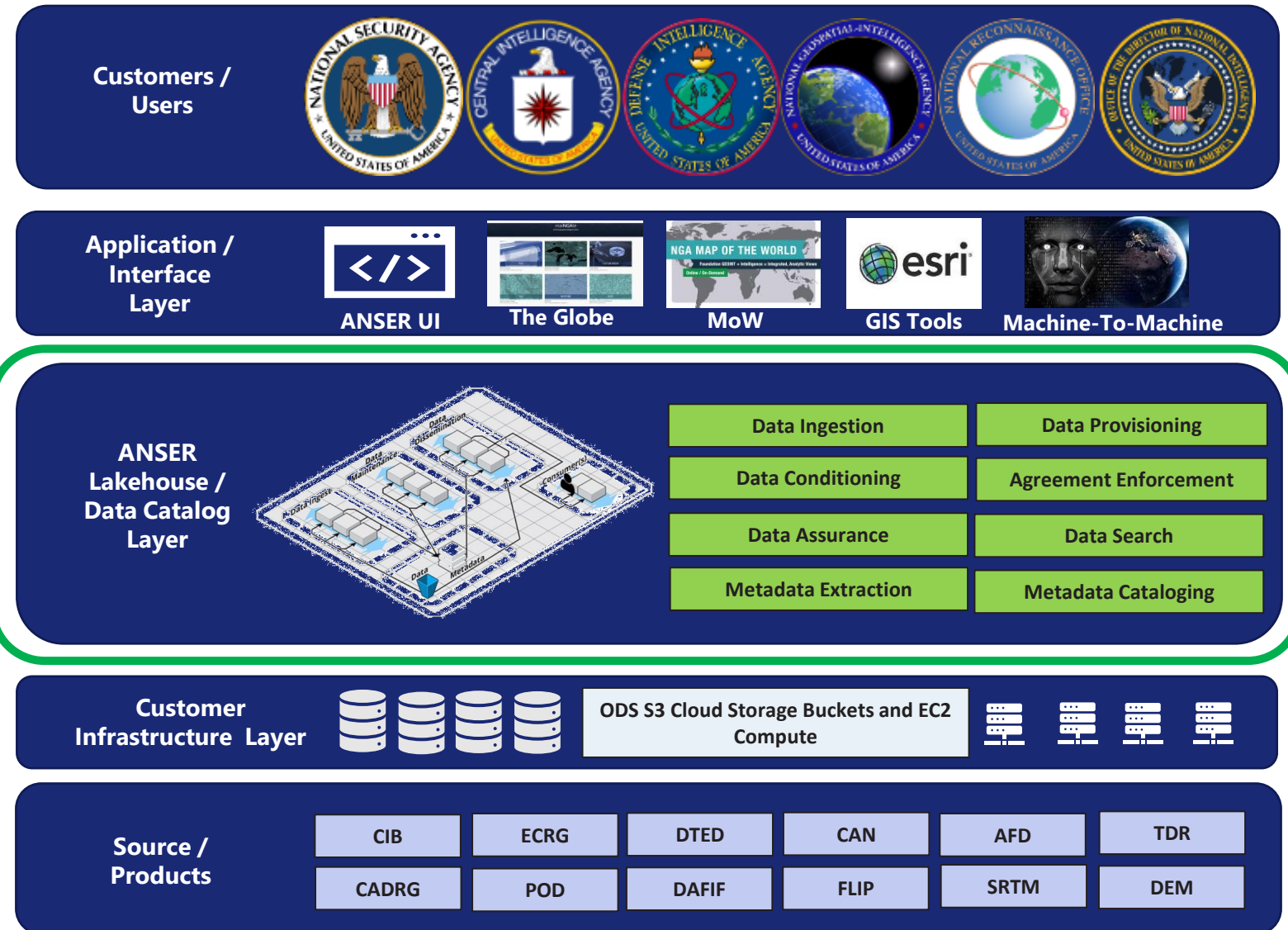**FREEDOM**
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ANSER WITHIN SERVICE LAYERS

ANSER provides a comprehensive suite of flexible, scalable, cloud-based enterprise data services that act as the intermediary data service layer between the enterprise libraries, indexes and storage solutions and the application layer, facilitating seamless connectivity with delivery channels and interfaces for users, AI/ML interfaces and commercial and customer applications

Within NGA the predecessor of ANSER (SCDS and Finite) have been in operations for years providing the following Services:

- Secure Ingest and Digital Data Delivery

- Notification Services for Contracts, NOX, and Data Stewards

- Notifications to initiate data workflows

- Foreign Disclosure and Release via FGDRT

Customers / Users

Application / Interface Layer

ANSER UI   The Globe   MoW   GIS Tools   Machine-To-Machine

ANSER Lakehouse / Data Catalog Layer

Data Ingestion	Data Provisioning
Data Conditioning	Agreement Enforcement
Data Assurance	Data Search
Metadata Extraction	Metadata Cataloging

Customer Infrastructure Layer

ODS S3 Cloud Storage Buckets and EC2 Compute

Source / Products

| CIB | ECRG | DTED | CAN | AFD | TDR |
| CADRG | POD | DAFIF | FLIP | SRTM | DEM |

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ANSER Value Diagram

Existing Data Architecture Solutions

CLOUDERA

databricks X Tabular

CUBIC®

aws

NetApp

**Data Warehouses
Data Indexes
Data Bases
Data Storage**

ANSER Data Lakehouse goes further by providing a centralized data catalog, data labeling, data structure, Data search and data security

ANSER integrates with existing Enterprise Data Architecture Solutions allowing your data to do more

**User can do more with their Data
The Value of Data to the User is maximized**

- Secure Data Delivery
- Data Transformation
- Supply Chain Management and Reporting
- Data Quality Checking
- AI/ML Integration
- Custom Data Workflows

A mature data management approach and enterprise data ecosystem is achieved
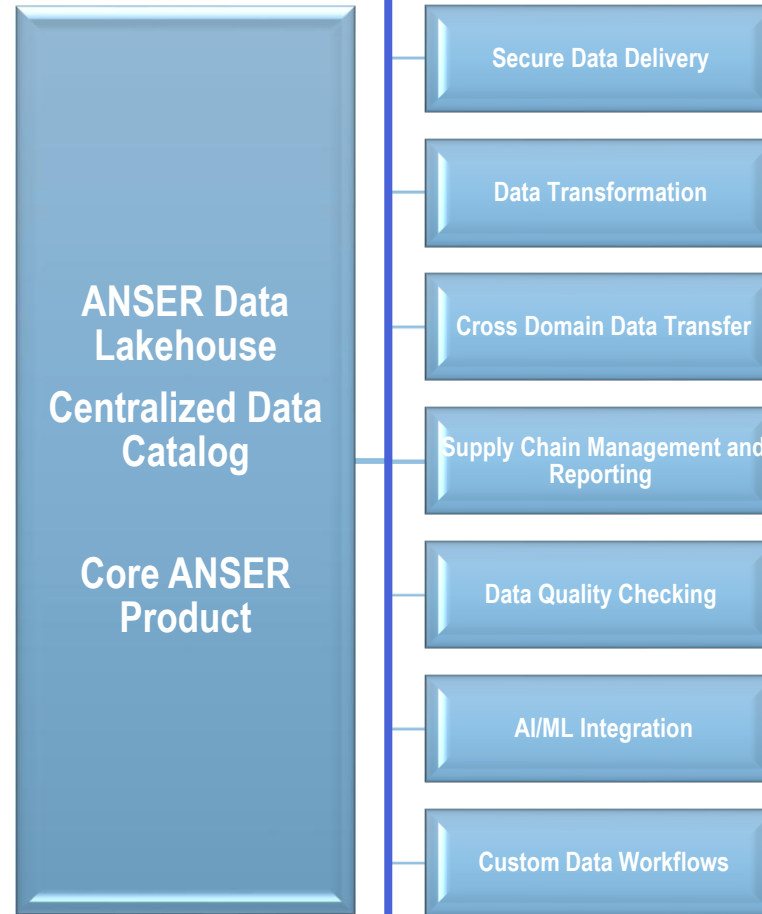
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ANSER Capability Model

CORE PRODUCT OFFERING

ANSER Data Lakehouse is our core product providing all main ANSER Data Capabilities / Services

- **Data Ingest**– *Provides ability to ingest metadeta from objects, files, products*

- **Data Catalog** – *Provides centralized data catalog for all data holdings*

- **Data Labeling**– *Provides data labeling and structured definitions on customer standards*

- **Data Security** – *Provides IDaM through Role Based, Fine Grained and Attribute Based access controls*

- **Data Maintenance**– *Provides data stewardship over data holdings, data receipt, and data release*

- **Data Search –** *Provides full search capabilities based on data labeling allowing advanced relational searches at the object and attribute level*

- **Data Dissemination** – *Provides the ability to release data to authorized users based on data security access controls*

ANSER Data Lakehouse
Centralized Data Catalog
Core ANSER Product

- Secure Data Delivery
- Data Transformation
- Cross Domain Data Transfer
- Supply Chain Management and Reporting
- Data Quality Checking
- AI/ML Integration
- Custom Data Workflows

ADDITIONAL PRODUCT OFFERINGs & PROFESSIONAL SERVICES

Expanded Product Offerings with additional customized capabilities developed using Professional Services

- **Secure Data Delivery** – *Provides additional cybersecurity data delivery mechanisms based on specific customer data delivery needs*

- **Data Transformation** – *Provides dynamic data product creation and data conversions including product, file and format transformation based on specific customer publication needs*

- **Cross Domain Data Transfers** – *Provides ability to move data between security domains*

- **Supply Chain Management and Reporting** – *Provides supply chain analysis and reporting based on specific customer metrics including providers, costs, sources, user community, etc.*

- **AI/ML Integration** – *Provides integration with customer AI/ML applications and algorithms*

- **Custom Data Processes and Workflows** – *Provides customized data workflows and automation based on specific customer data processing needs.*

- **Data Quality Checking**– *Provides data quality checking workflows based on customer provided data quality standards*

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ANSER Lakehouse Overview
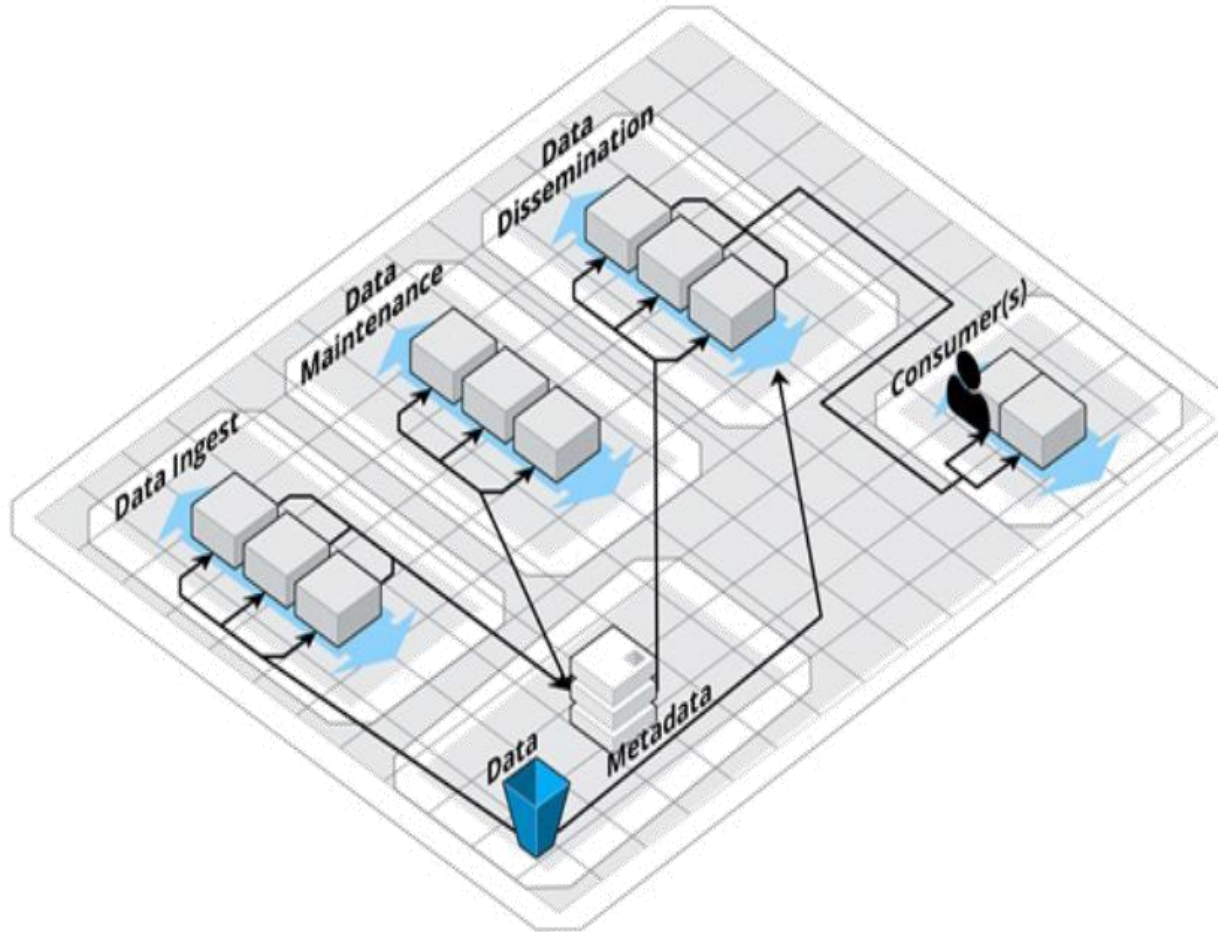
Architecture Overview

- **Data Ingest**
  - Provides the ability to ingest, extract, and relate/match any metadata content/type (digital/non-digital sources) into a Single Metadata Content Library and Data Repository.

- **Metadata Catalog**
  - Centralized Metadata Catalog for all data holdings of any data product type or format. Provides a central master record continually updated for all data holdings.

- **Data Maintenance**
  - Provides data stewardship over the data supply chain including data conditioning, data labeling, and data security.

- **Data Dissemination**
  - Rapid/robust data access for users with the right level of access with built in dissemination/access standards.

Product Development Maturity

The maturity of the ANSER product will occur in increments that follow IT product design and development best practices. The ANSER IR&D effort will provide demonstrations and functional updates during this product maturity process that in turn drive other go to market milestones such as customer engagement, establishment of sales channels, product license elements, and establishment of branding/marketing

The following is the ANSER product maturity roadmap and notional schedule for the core product of the ANSER Lakehouse Catalog & Capabilities.

Foundational ANSER Architecture	Alpha Version Minimal Viable Product	Beta Version Initial Operational Product	Version 1.0 Final Operational Product
90 Days	*90 Days*	*90 Days*	*90 Days*

• Establishment of ANSER Development Environment • Migration of legacy code base • SW Consultant Team Support • Replace NGA specific code/functions/architecture design elements • Begin UI development • Begin new architecture design elements	• Complete code conversion to remove legacy code • Complete any license element removal and replacement with FOSS as necessary • Continue UI and Sys Admin interface development • Continue to Refine ANSER functionality • Test all ANSER functionality • Create initial customer marketing demos	• Package all software for product delivery • Complete and deliver all ANSER SW documentation to Sales Channel • Complete and deliver all ANSER pricing models to Sales Channel • Complete and deliver all ANSER branding to Sales Channel • Continue UI and Sys Admin interface development • Continue to Refine ANSER functionality	• Address and resolve any SW issues identified during Sales Channel testing • Address and resolve SW security issues identified during Sales Channel security testing • Address and update any ANSER documentation as needed • Ensure ANSER support services are in place

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