GeoTrellis seeks to provide analysts and developers in the GEOINT community with tools to easily process large geospatial datasets at unmatched speed and scale to create cloud-based analytical tools.

TARGET GROUP	NEEDS	PRODUCT	BUSINESS GOALS
Which market or market segment does the product address? Provides a broad array of analytics and geospatial modeling in a number of domains, including; agriculture, forestry, hydrology, climate change, and urban planning. *Who are the target customers and users?* Organizations with large geospatial data sets. Creating derived products with custom software solutions.	*What problem does the product solve?* Ability to process data at a scale and speed that is otherwise technically challenging: web-based, big data geospatial processing. *What benefit does it provide?* Extensive functionality and integration with other open source libraries: GeoWave, GeoMesa, GDAL, PDAL. Rich analytical functionality, speed, clear documentation, demos, and tutorials.	*What product is it?* An open source library built on Apache Spark and written in Scala. *What makes it special?* designed for parallel processing and big data distributed systems to increase speed, scalability because of extensive backend support, broad array of analytical geospatial functionality that use raster, vector, point cloud.	*How will the product benefit the organization?* Supports the analysis of large geospatial data quickly. *What are the business goals?* Provide support for new analysis functions and customization to programs using GeoTrellis. Lowering the barrier to harnessing big data geospatial processing solutions.

Making "Big Data" Work for the Geospatial Community

TARGET GROUP	NEEDS	PRODUCT	BUSINESS GOALS
Which market or market segment does the product address? Developers and power users who are suffering from geospatial "Big Data" problems *Who are the target customers and users?* Several existing NGA and IC projects with the aforementioned "Big Data" problem are currently taking advantage of this capability. Of particular importance, NGA has integrated it within IC GovCloud for the GEOINT community at large.	*What problem does the product solve?* This community has either too much or too complex geospatial data for traditional systems (PostGIS) and requires a fundamentally distributed system to ease horizontal scalability. *What benefit does it provide?* GeoWave bridges the gap between popular geospatial projects and distributed processing/analytics frameworks.	*What product is it?* GeoWave is a library for storage, index, and search of multidimensional data on top of a sorted key-value datastore. GeoWave includes specific tailored implementations that have advanced support for OGC spatial types and both bounded and unbounded temporal values. *What makes it special?* GeoWave has integrations for various popular frameworks (eg. HBase, Accumulo, Hadoop, Spark, Kafka, GeoServer, Mapnik, PDAL, MRGEO, GeoTrellis)	*How will the product benefit the organization?* Provide access to distributed computing frameworks so that GEOINT analysts can better perform interactive analysis of massive, complex, geospatial datasets. *What are the business goals?* Support the foundation of NGA's cloud computing needs by giving developers and analysts the most efficient data store for their distributed platform that works in their environment with their data and their tools.

OpenSensorHub

OpenSensorHub (OSH) will provide a standardized way for integrating sensors into the GEOINT Services ecosystem, both as a means of accessing new, raw data feeds and as a means of integrating sensor-related capabilities into other GEOINT systems.

TARGET GROUP	NEEDS	PRODUCT	BUSINESS GOALS
Which market or market segment does the product address? Data normalization, search and discovery, IoT applications in NSG *Who are the target customers and users?* Developers, Analysts, and Operators who need access and control of sensors and sensor data for tactical purposes	*What problem does the product solve?* Heterogeneous sensor platforms *What benefit does it provide?* Access to configuration, tasking, and output via REST API Provides a model for user-level interaction with sensor modalities: support for reading/ displaying data and for controlling fielded sensors via JavaScript client libraries	*What product is it?* OSH is a set of web services for accessing new and extant sensors and sensor data, which can be deployed into secure networks *What makes it special?* Enable the consolidation of multiple, independent sensor control systems into a single, common control system Speed the introduction and adoption of new sensors into existing platforms	*How will the product benefit the organization?* Will allow NGA and its partners to access and control a variety of sensors, without needing extensive, device-specific code, thus saving money. It will also save analysts time in their workflow if all the data is available in one place *What are the business goals?* A library of standards-based, open source code that can be integrated into existing software systems providing new/simpler sensor access

Piazza

A framework and tool-suite enabling rapid geospatial solutions for the enterprise; Piazza does the heavy lifting needed by developers moving systems to the cloud.

TARGET GROUP	NEEDS	PRODUCT	BUSINESS GOALS
Which market or market segment does the product address? GEOINT applications and services built to support the mission in the areas of defense, intel, humanitarian and disaster relief *Who are the target customers and users?* Developers, primarily geospatial, building applications running in the cloud, especially developers who may need to combine individual tools/algorithms into a repeatable solution	*What problem does the product solve?* Need for scalability of non-scalable algorithms and web services, locating algorithms and services and data, chaining analyses into a workflow *What benefit does it provide?* Allows for data access via OGC standards, load balancing legacy algorithms without the need for any new infrastructure, on-demand scalability and orchestration support of algorithms and services	*What product is it?* An open source framework and tool-suite that bridges the gap between legacy and cloud based applications *What makes it special?* Infrastructure for enabling geospatial enterprise products, provides flexible deployment of algorithms, simple REST API for doing common, but often complex, geospatial work, creates repeatable workflow support to combine individual tools and algorithms	*How will the product benefit the organization?* Liberating and simplifying access to GIS technology, rapid enablement of enterprise GIS solutions, transitioning algorithms into enterprise scale, access to existing, deployed, algorithms, services, and data, repeatable workflow to support the mission *What are the business goals?* Technology modernization across the enterprise, improved time-to-market for applications, lowering the barrier of entry by simplifying integration work

GeoMesa is an open-source, distributed, spatio-temporal database built on a number of distributed cloud data storage systems. GeoMesa aims to provide as much of the spatial querying and data manipulation to Accumulo as PostGIS does to PostgreSQL.

TARGET GROUP	NEEDS	PRODUCT	BUSINESS GOALS
Which market or market segment does the product address? Analysts and developers with large volumes of spatiotemporal data requiring ingest and analysis of at-rest and streaming vector data. GeoMesa has many uses for activity-based intelligence applications such as tracking and pattern of life analyses. *Who are the target customers and users?* IC and DOD organizations which need to ingest and leverage large geospatial datasets for fast queries and complex analytical products.	*What problem does the product solve?* High-speed ingest, storage and indexing of geospatial data into distributed stores (Accumulo, HBase, Cassandra) with ability to quickly perform interactive analyses and visualize results. *Which benefit does it provides?* Allows teams working with large geospatial datasets to create ingest pipelines, query and visualization complex data, and build derivative analytic products easily.	*What product is it?* GeoMesa is a toolkit for configurable ETL of diverse spatiotemporal data into distributed cloud data storage systems. At-rest and streaming data can be integrated and queried using open-standards (OGC) and well as interactively analyzed using extensions supporting spatial types and functions in Spark SQL and Python. *What makes it special?* Support for interactive, distributed analytics using analyst tools like SQL, Python, and R across the various back-end databases. Support for streaming data via Kafka. Integration with notebook servers.	*How will the product benefit the organization?* Enables rapid data exploration and analytic development via notebook integrations. Enables fast distributed geospatial data processing and business intelligence via Spark SQL. *Enables near-real time processing via Kafka.* *What are the business goals?* Provide high-level tooling to support complex mission use case. Enable creation of derivative analytic products and provide tooling to facilitate generation of value.