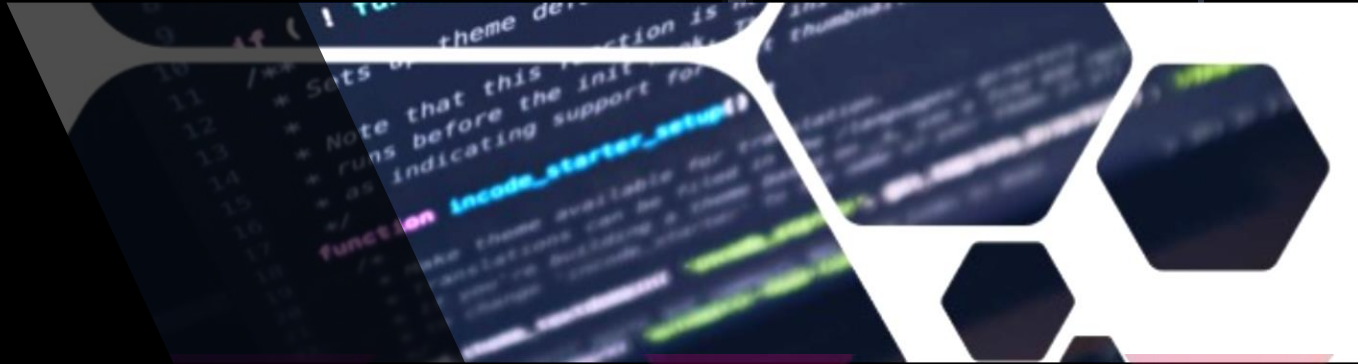
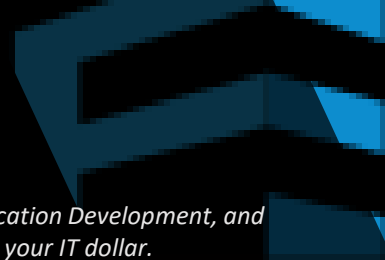




Performance Overview



We specialize in providing customers with innovative Knowledge Management solutions, Application Development, and System Engineering services that automate the work, empower the employee, and help stretch your IT dollar.

Business Information

Company Name: **Faeala Tech, LLC**
Address: 4445 Willard Avenue,
Chevy Chase, MD 20815
Certifications: SDB
Primary NAICS: 541512
CAGE: 87U10
DUNS: 116817988
POC: Rami Mansour
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NAICS Codes

541512	Computer System Design Services
541511	Custom Computer Programming Services
541330	Engineering Services
541513	Computer Facilities Management Services
541519	Other Computer Related Services
541618	Other Management Consulting Services

Performance Overview

- AI
- ADVANCED ANALYTICS
- DATA SCIENCE
- BIG DATA ARCHITECTURE
- ENTERPRISE ARCHITECTURE
- INFRASTRUCTURE
- AUTOMATION & VIRTUALIZATION



866-FAEALA1

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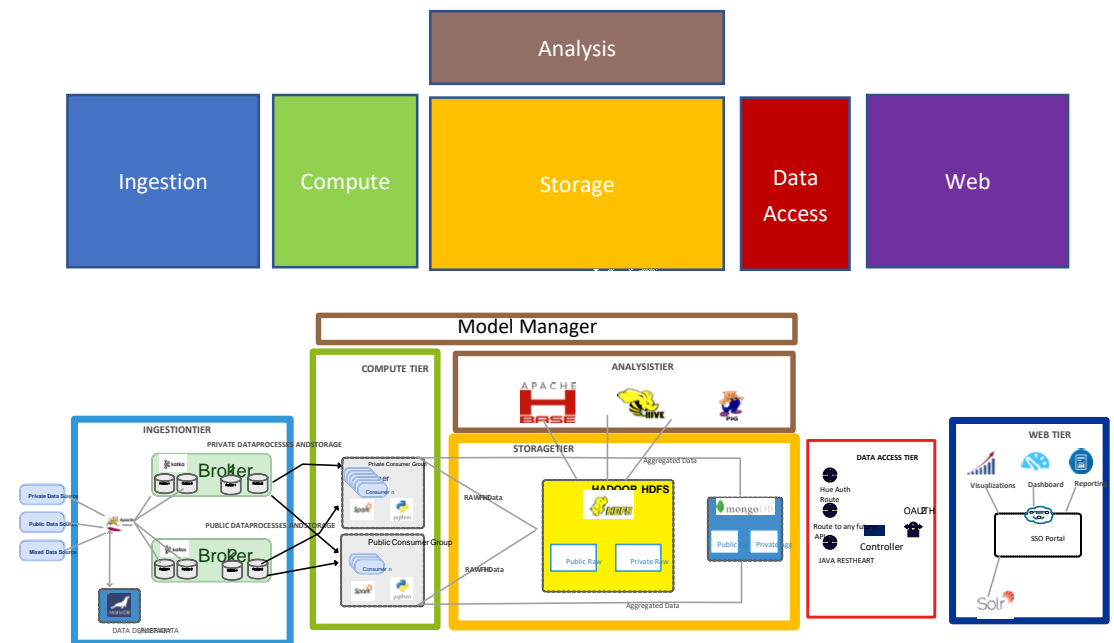
<https://faealatech.com/>

AI, DATA SCIENCE, BIG DATA ARCHITECTURE

Big Data – A multi-tier platform that provides the ability to ingest multiple structured, semi-structured, and non-structured data streams.

- ❖ Use case driven and will expand with size and products based on use case.
- ❖ READ-ONLY platform, data does not feed back into the source systems.
- ❖ Upon data ingestion, the platform will provide compute, analysis and aggregate capabilities while preserving raw source data into a central reservoir for future analysis.
- ❖ Using open source stream processors, the platform is able to aggregate data dynamically and persist into an isolated read only data store for later viewing and interactive visualization.
- ❖ Architected to be scalable, modular, and agnostic to physical infrastructure
- ❖ Able to identify source data changes and new data sources upon ingestion

DECOMPOSE: DESIGN PRINCIPLES/BUILDING BLOCKS



- ❖ Ingest data from any source: Private, Public, Mixed
- ❖ Send data to single compute cluster while persisting raw and aggregated documents and datasets to the correct cluster for further use.
- ❖ Provides vehicles and tools to deliver full compute Data Science and data delivery to external users

AI, ADVANCED DATA ANALYTICS & DATA SCIENCE

Text Classification Example Using Neural Nets and Big Data to sort/shuffle records and filter

- ❖ Process/normalize/filter through all ~ 44M claim records.
 - ❖ Process Elasticsearch output to be readable by common dataframes. -44M
 - ❖ Filter out records that do not have X_codes – 44M – 34M = 10M
 - ❖ 10M records have Xcodes.
 - ❖ Split the records into train data and test data
 - ❖ 9M records to train with over 1170 labels(test sample)
 - ❖ 1M records to validate model.
- ❖ Output = ~10M records with X_codes directly attached split into 90/10 for train/test data.

Classification Multi-Labeling

Common Types of Classifiers

- ❖ Machine Learning Based Systems
- ❖ Hybrid Systems (Rule based + DML)

Methodologies

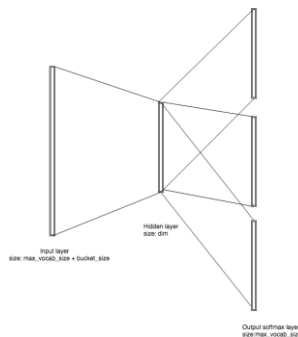
- ❖ Batch
- ❖ Online

Combined Approach

- ❖ Current: Super Learner
- ❖ Future: Combined Super learner on batch with continuous online learning

Word Embedding, Word2Vec

- ❖ Dim represents the dimension of the hidden layer in training, and thus the dimension of the embeddings. The matrix is initialized with a uniform real distribution between 0 and 1/dim, and is uniform in the unit cube.
- ❖ Reinitialize on each train and use the validation set to determine the best number for dim based on accuracy



The Key : Embedding types Enriching Word Vectors with Subword Information

Word Embeddings :

Sentence: "This is a test phrase."

1-Gram (Unigram): [This, is, a, test, phrase, .]

2-Gram (Bigram): [This is, is a, a test, test phrase, phrase.]

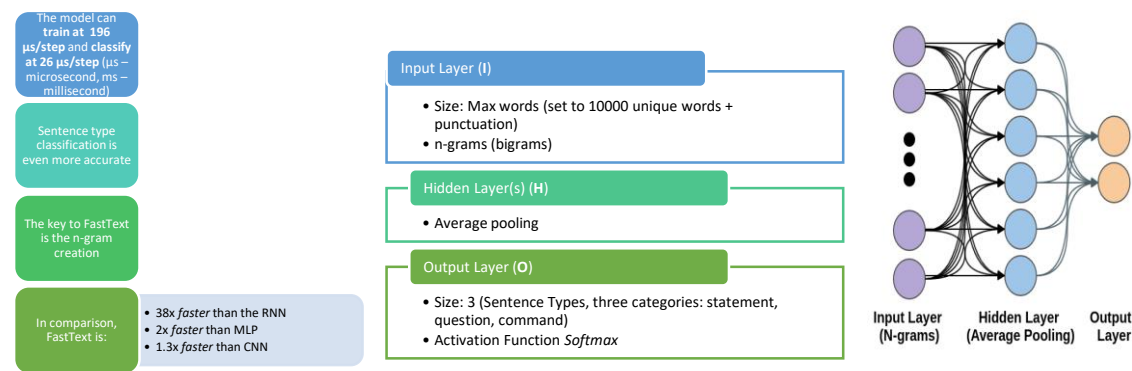
3-Gram (Trigram): [This is a, is a test, a test phrase, test phrase.]

Character Embeddings:

Sentence: "This is a test phrase."

3-Gram (Trigram): [This, his, is i, s is, s a, a t, a te, tes, test, est, st p, t ph, phr, phra, hras, rase, ase, se ., e ., .]

During the model update, fastText learns weights for each of the n-grams as well as the entire word token. Using character n-grams can create a more robust network as partial components of words are often shared. However, for our case, we use a combination of words and punctuation, leaving out the parts-of-speech and not using characters. This is very true of the claim sentences I have encountered thus far.



ENTERPRISE ARCHITECTURE, AUTOMATION & VIRTUALIZATION

Address Infrastructure as a Service (IaaS) needs categorized by:

- A. Governance
- B. Provisioning
- C. Configuration Management
- D. Integration
- E. Software Delivery

CATEGORY A FEATURES

- ❖ Role-Based Access
- ❖ Approval Workflow
- ❖ Cost Model Build Out
- ❖ Express Lane Quota
- ❖ Quota Enforcement
- ❖ Cost Accounting/Forecasting
- ❖ Automated Service Bundles

CATEGORY B,C,D,E FEATURES

- ❖ Automated Service Bundles:
- ❖ Parallel VM Deployment
- ❖ Parallel VM Decommissioning
- ❖ Containers – OpenShift (Kubernetes/Docker)
- ❖ Deploy DBaaS
- ❖ Deploy HA Proxy Node Addition without Service Interruption
- ❖ Deploy HA Proxy Load Balancer
- ❖ Deploy JBOSS/WildFly within Load Balancer
- ❖ Full AIS Deployment through CICM (85% Complete – Pending AED Release)

BACKGROUND

- ❖ CONCEPT #1 – Develop a Single Storefront (both Scalable & Automated) for OpenStack Development Environment
- ❖ CONCEPT#2 – Investigate CMP
- ❖ CONCEPT#3– Develop Vendor Agnostic API Layer
- ❖ CONCEPT#4– Combine CMP with API Layer to Mitigate Vendor Lock
- ❖ CONCEPT #5 – Ability to manage all hypervisors, container services & all downstream automation from a single delivery portal to enable rapid change and transformation

NO	FEATURE
1	Create PTO RHEL 7.5 VM with IDM & SAT5 (click)
2	Create PTO RHEL 7.5 VM with IDM & SAT6 (click)
3	Interchange Blocks of Blueprints (e.g. switch from SAT5 to SAT6)
4	Scale out/Deploy API Box to API cluster with HA Proxy without loss in service (real-time)
5	OpenShift Back end & front end deployment (RocketChat)
6	Trove DB instance deployment
7	Ability to track processes & errors within the API for process remediation
8	Decommissioning VM AND /.IDM/SAT/DNS/GROUNDWORKS/BES Client/Groundworks(testing)
9	Cost Accounting by group & user
10	Quotas by groups & user
11	Built in internal failover & load balancing from the API to the DB
12	Apache WebServer
13	Trove
14	MariaDB/Gallera Cluster for HA DB failover
15	CICM integration
16	Launch new HA Proxy Load Balancer
17	Deployment of JBOSS/WildFly into HA Proxy Cluster
18	Deployment of AIS via CICM

