NOTE: ALL CONTENTS OF THIS DOCUMENT ARE TENTATIVE, and PENDING ROUGH CONSENSUS AMONG THE GROUP

Central Intelligence Platform

Enterprise NeuroSystem Group

Goal of the meeting

- Decide upon the scope of the working group
- Philosophy of Operation
- Assumed Environment for work of the group
- Tentative Listing of problems that can be solved in this environment
- Prioritization of the problem

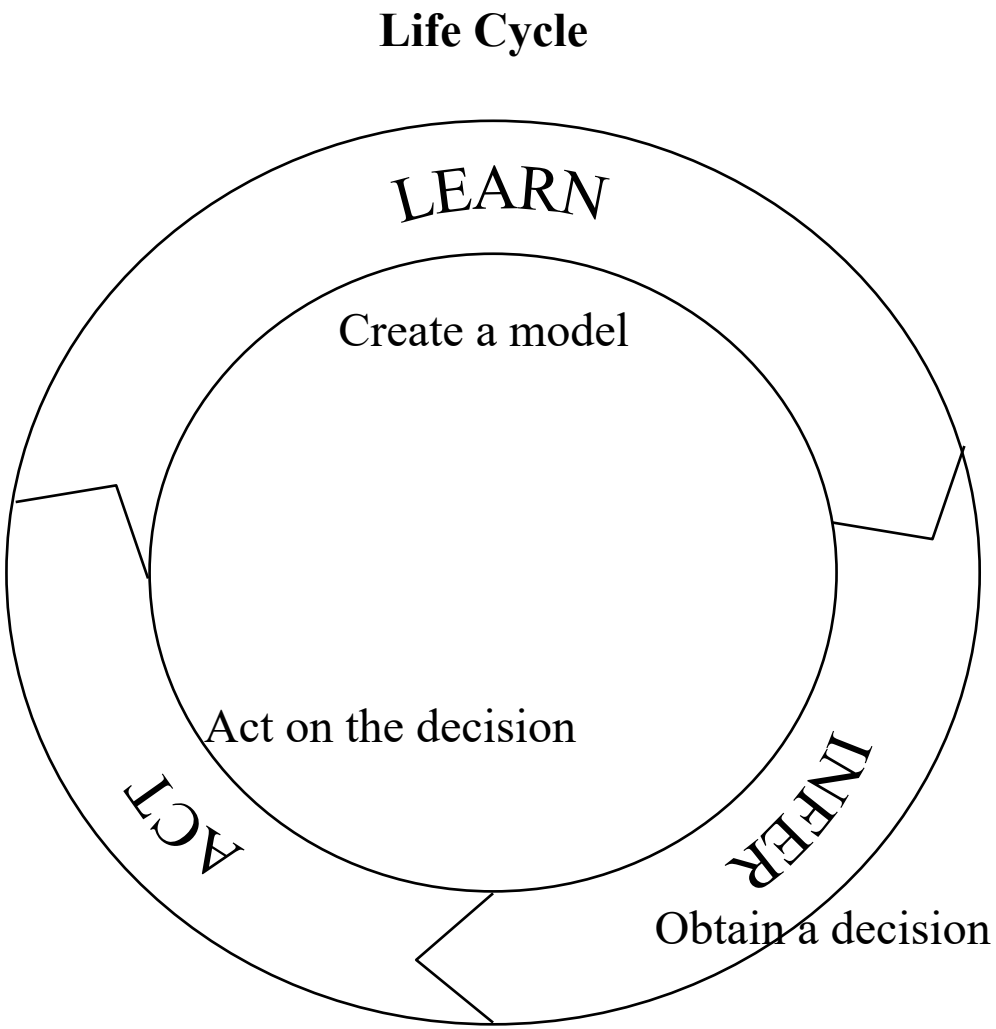
Scope of Working Group

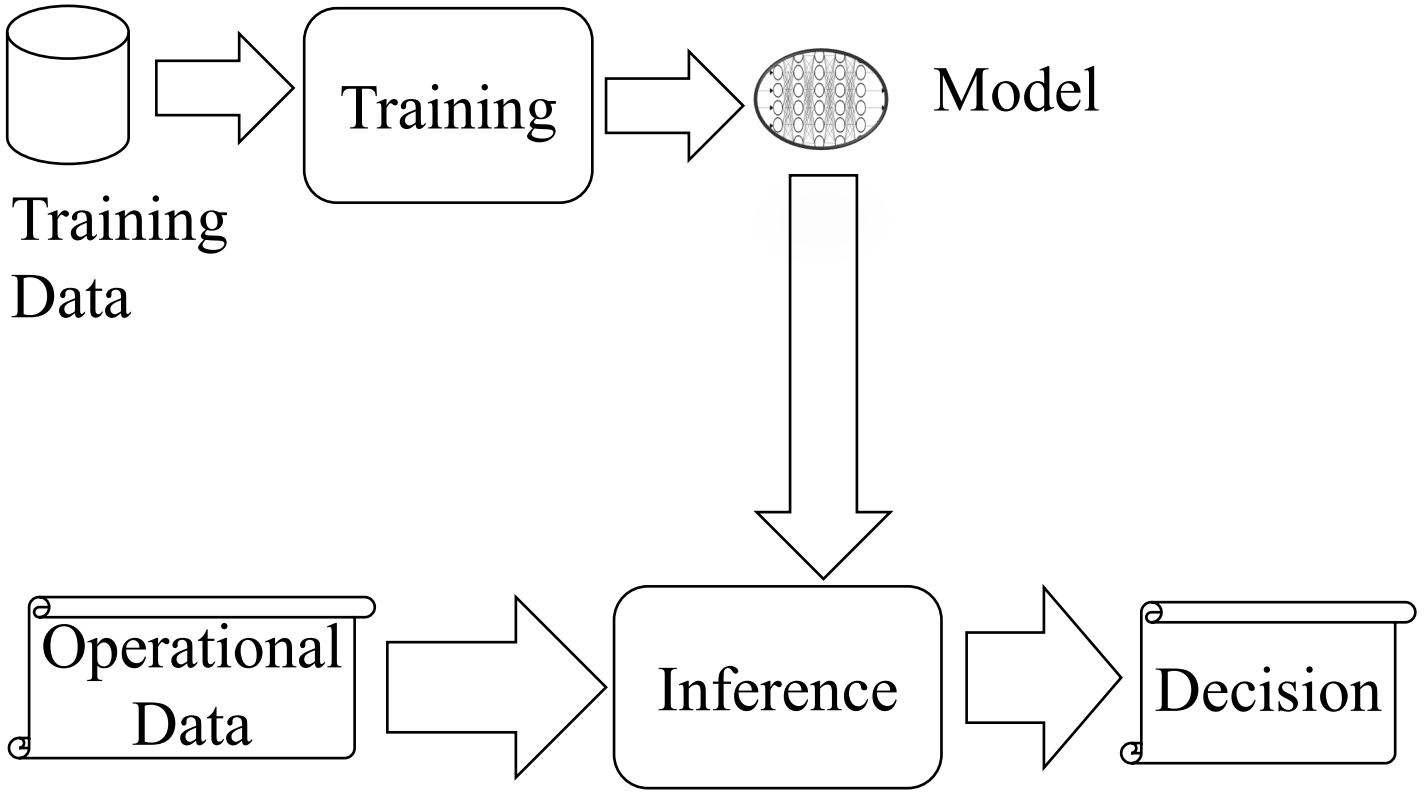
- We believe
  - that there are some challenges in creating enterprise scale AI-enabled/data-driven systems that can only be solved by a community approach
  - that those problems can be best be addressed by defining a set of commonly accepted open interfaces (APIs)
  - That each enterprise can differentiate itself by providing specialized implementations of the interfaces
- This working group
  - will identify the challenges
  - define the common interfaces that can help to address the problem
  - Provide reference implementations for those interfaces

Philosophy

- We will try to avoid duplication of effort in other standard bodies and open source initiatives
- We will maximize reuse of existing APIs and interfaces
- We will not define the interfaces to favor any specific company
- We will try to be efficient and streamlined in our procedures
- Technical differences of opinion will be resolved by means of rough and diverse consensus

AI based Solutions

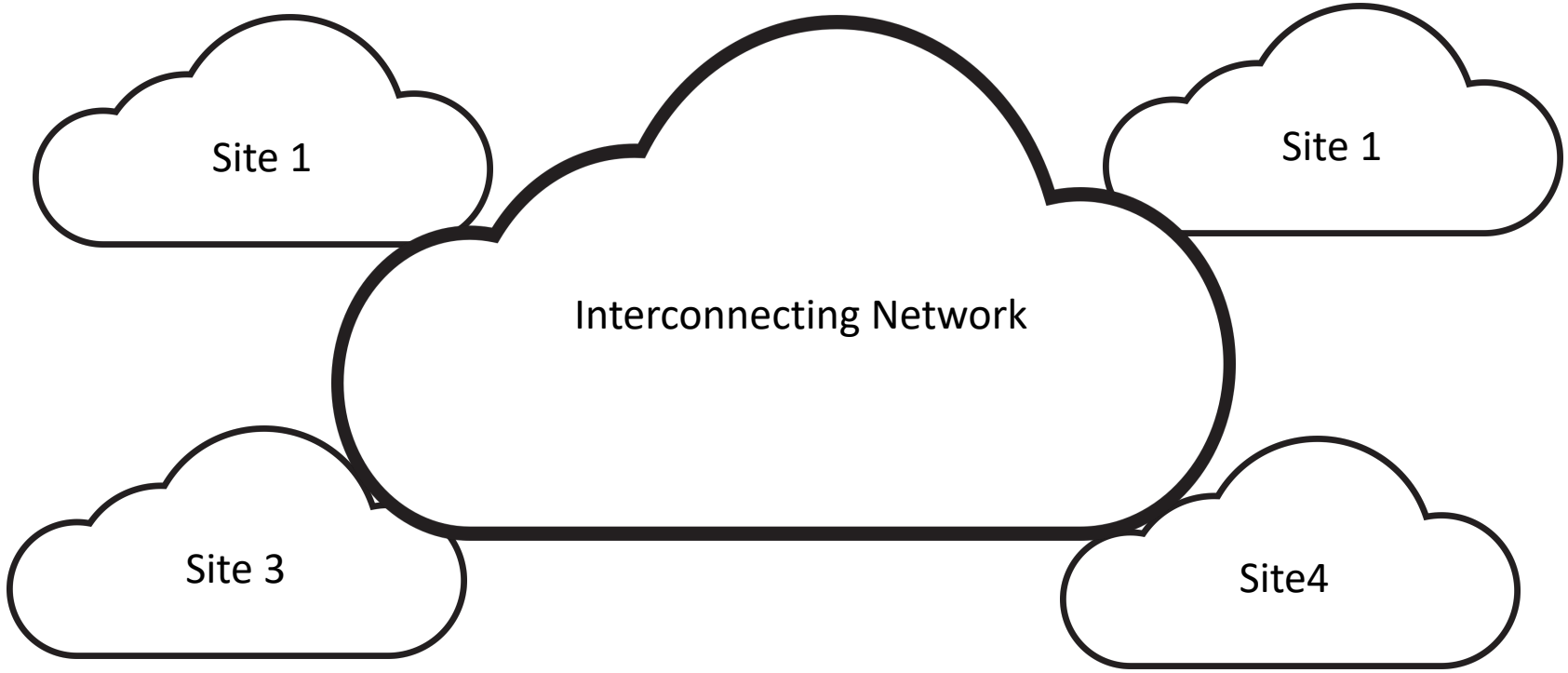




Definition

Assumed Environment

- An enterprise environment consists of many ‘sites’ that are connected together by a IP-based Network (Intranet/Internet)
- Sites may be owned by different administrative entities or be all owned by the same administrative entity



Functions performed by a site

- Each site may be performing one or more of following functions as part of an enterprise AI Solution
  - Generating training data – i.e. data to be used for learn stage of life-cycle
  - Generating operational data – i.e. to be used in the infer stage of life-cycle
  - Data Catalog - Storing data for future use
  - Data Transforming – Changing Data (e.g. compressing, anonymizing) etc.
  - AI model training
  - Model Catalog – Storing AI Models and publishing to other sites
  - Code Catalog – Storing program (e.g. containers/packages) for other sites
  - Model Modification - Modifying an AI model obtained from another site
  - Inference -- Using an AI model to perform inference
  - Monitoring and Managing the AI solution

Some Examples

- A0: All AI functions done at one site
  - Example: STT server in cloud
- A1: Data Generated at some sites; transformed at the site; stored at other sites
  - Example: Car collecting data, compressing it, and sending to a central store
- A2: Data Generated at some site, transformed at the site; AI model learnt on transformed data at another site
  - Example: Health Care records at hospital branch, anonymized at branch, sent to research site
- A5: One site trains a model, other site modifies the model and uses it for inference
  - Example: Large base Models transformed locally to address local nuances
- A6. Multiple sites collaborate together for inference
  - Example: Multiple drones working to guide operation of a harvester in the field
- A7: Many sites train individual models on local data, a fusion site combines their models
  - Example: (Federated Learning Use Cases)

Some Common Patterns of Enterprise Data

- D1: Some sites act as cache for data that is kept at a central site
- D2: Edge Sites preprocesses data, sends events to central Mgmt Site
- D3: Edge Sites performs a time-shifting of the data, moving data at off-hours time to the central Site
- D4: Edge Sites are a repository for keeping locally generated data, with distributed search/indexing and key management from a central site
- D5: Edge provides local disconnected operation via local proxies in presence of disrupted networks
- D6: Edge provides a distributed data repository of peer to peer functions

Scope Restriction for Group

- We will only define the interfaces that are needed across two or more sites in order for sites to perform their function
  - We assume that each site is free to do local implementations

Scope of Group

- Problems In Scope
  - How do the sites describe themselves to other sites
    - We will define a language (e.g. an XML schema) to describe a site
  - How do sites discover each other and their capabilities
    - We will define a set of conventions to publish/advertise site descriptions
  - How does a site access resources at another site.
    - We will define a set of conventions to access the catalog(s) of resources
  - Etc.
- Problems out of Scope
  - How is each site structured internally
  - How is each site training an AI model
  - How is each site modifying an AI model
  - How is each site collecting data
  - Etc.

Proposed Initial Scope of Work

- How do the sites describe themselves to other sites
  - We will define a language (e.g. an XML schema) to describe a site
- How do sites discover each other and their capabilities
  - We will define a set of conventions to publish/advertise site descriptions