

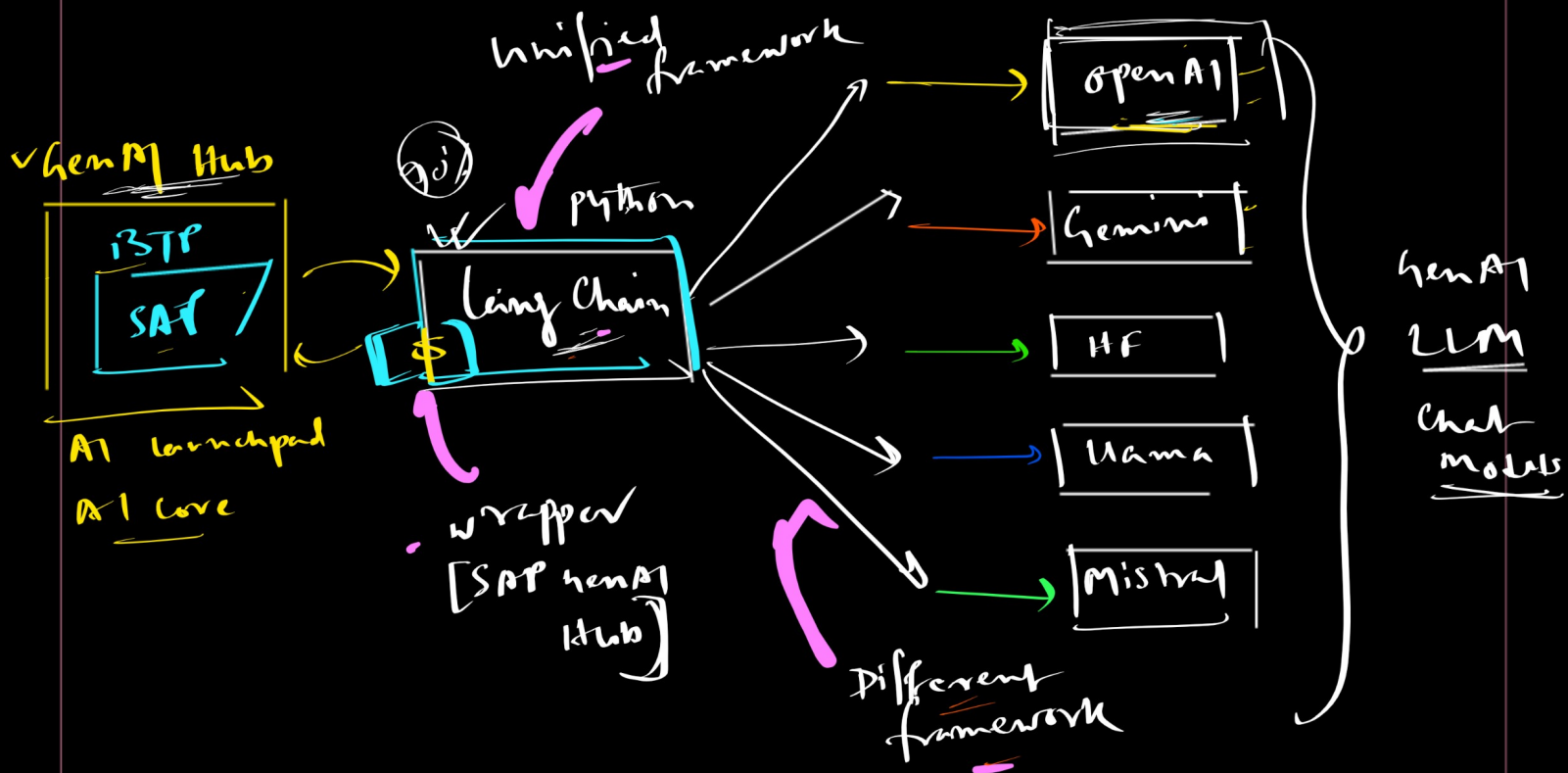
# LLM - Gen AI

## Engineering skills (Real world Gen AI App)

- ① ⇒ Natural language (English fluency)
- ② ⇒ Programming language (Python)
- ③ ⇒ Domain knowledge (Bank, Retail, Manufacturing, legal,)

- ④ ⇒ Python (libraries, array, loop, function)
- ⇒ ML (Regression, Classification)
- ⇒ NLP (Tokenization, vectorization, similarity)
- ⇒ Deep learning (Techniques)

Foundation



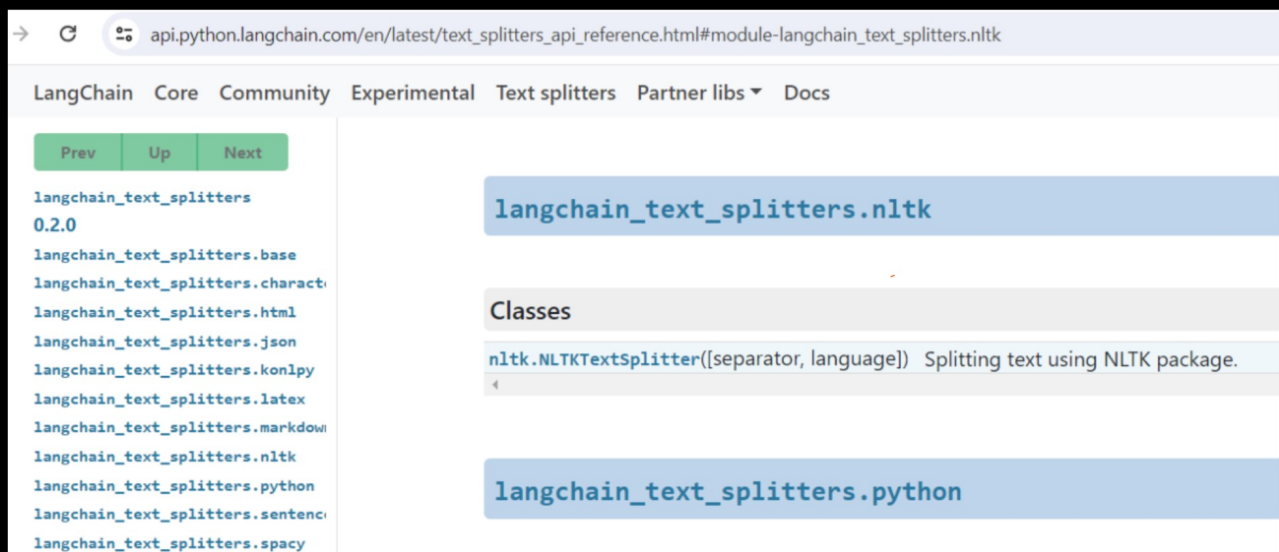
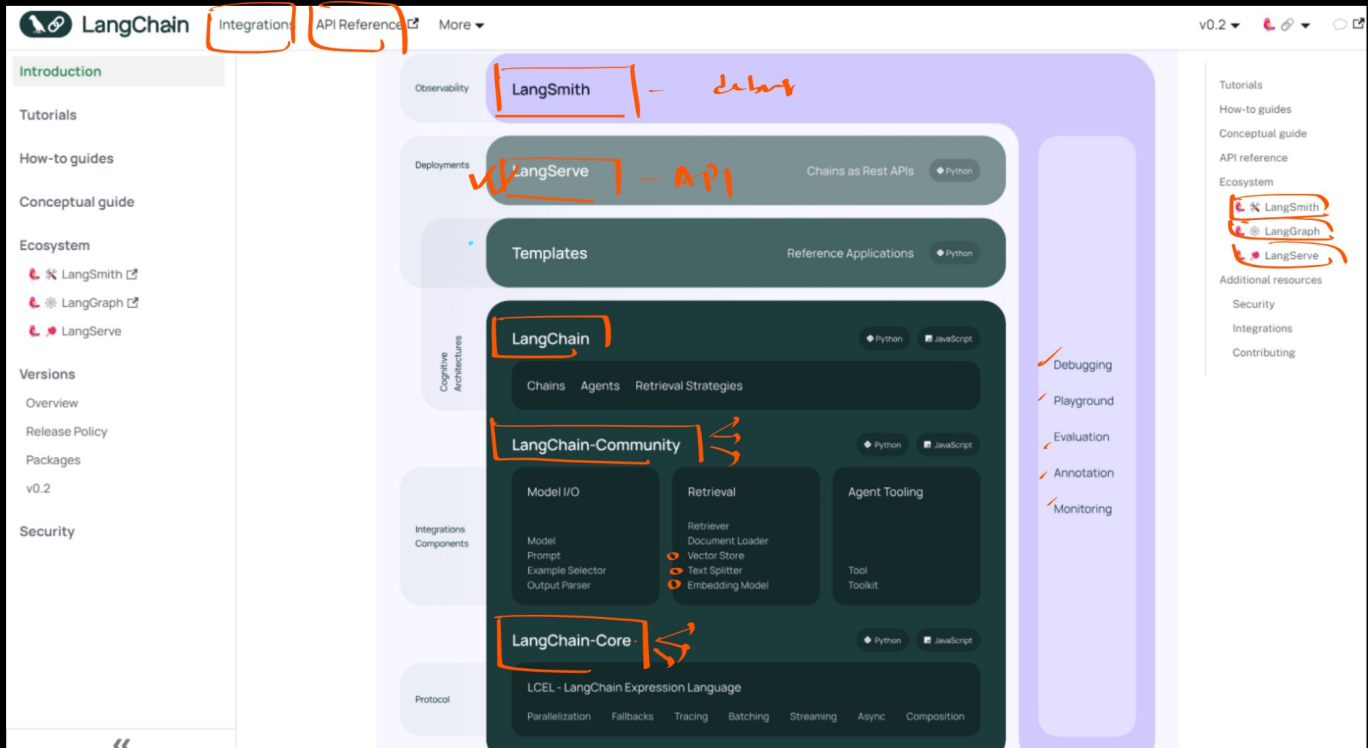
```

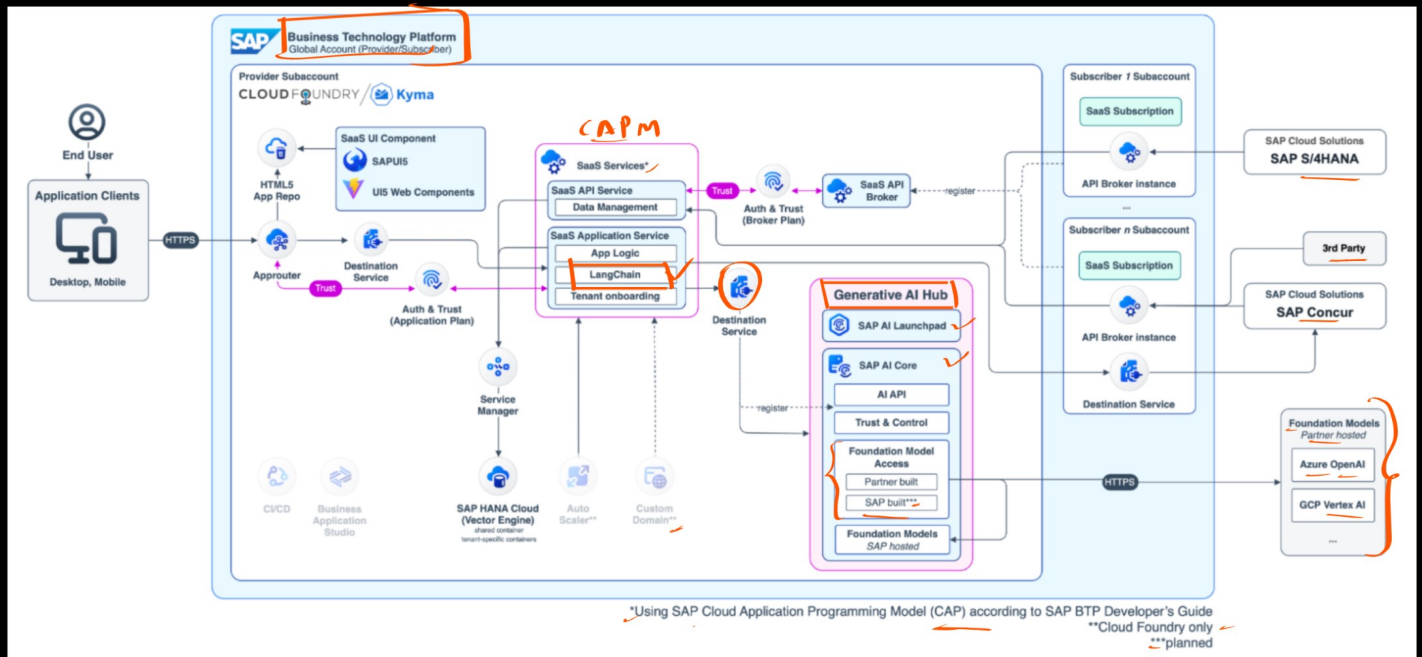
1 from gen_ai_hub.proxy.langchain.openai import ChatOpenAI LLM
2 from gen_ai_hub.proxy.langchain.openai import OpenAIEmbeddings
3
4 from langchain.chains import RetrievalQA
5 from langchain.text_splitter import CharacterTextSplitter
6 from langchain_community.document_loaders import TextLoader
7 from langchain_community.vectorstores.hanavector import HanaDB

```

✓ langchain (M) → (10-15)

{
   
 ↳ Llama Index
  
 ↳ phi data





<https://discovery-center.cloud.sap/refArchDetail/ref-arch-open-ai>

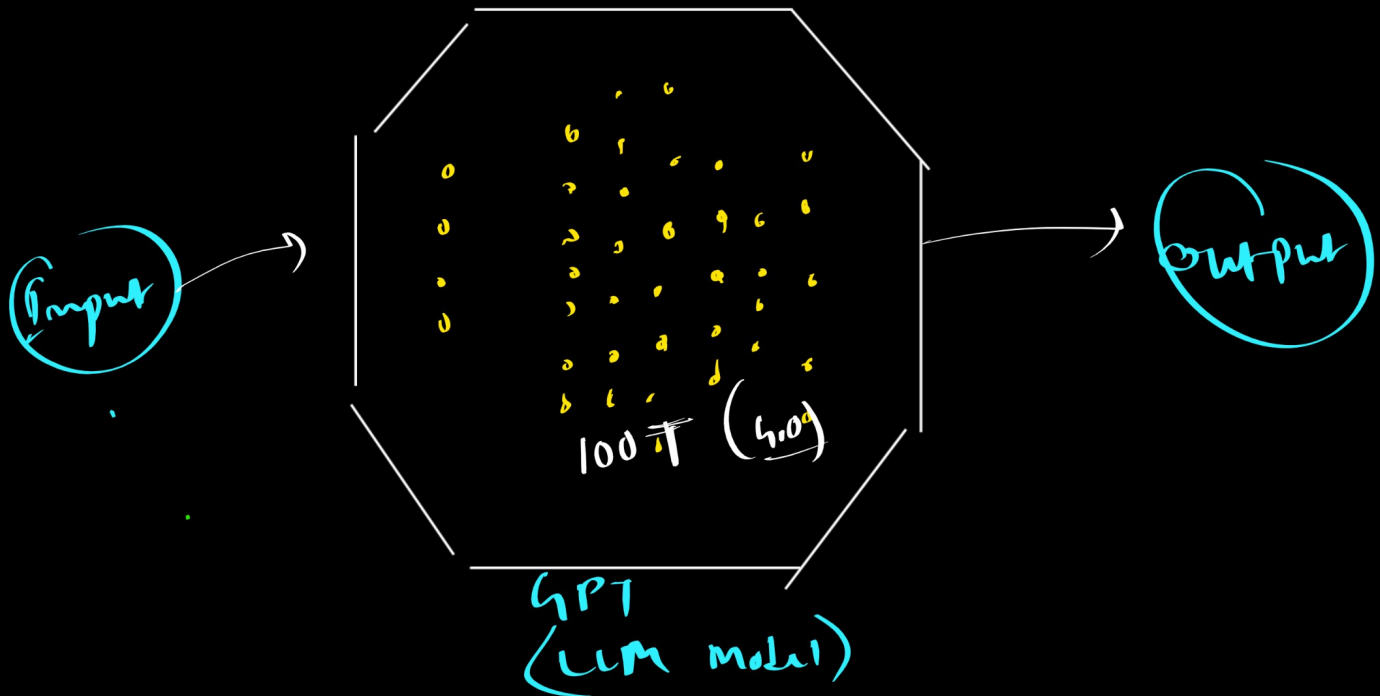
<https://platform.openai.com/>

→ Playground

↳ system message

↳ user message

↳ AI message

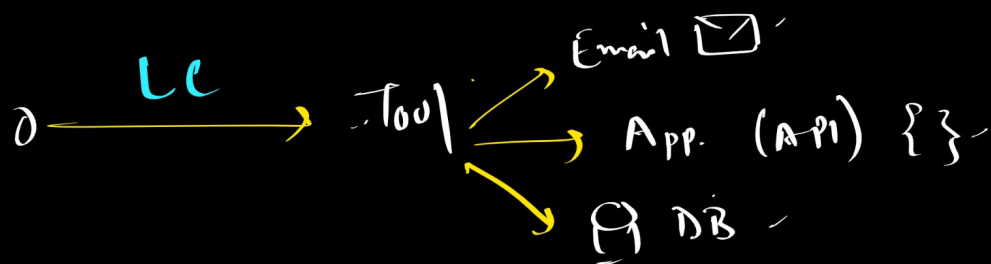


All open knowledge around the world

Including SAP knowledge in general

chat GPT

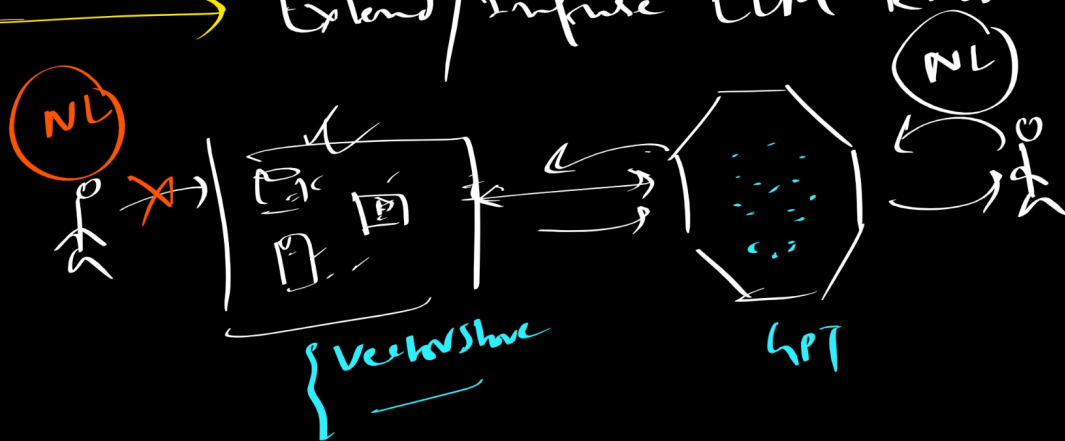
o LL → Domain Specific Instruction



o LL → workflow: {} → [ ] → ✉️

o LL → Agent / Assistant → chatbot → memory  
↓  
[ ]

o LL → Extend / Infuse LLM knowledge



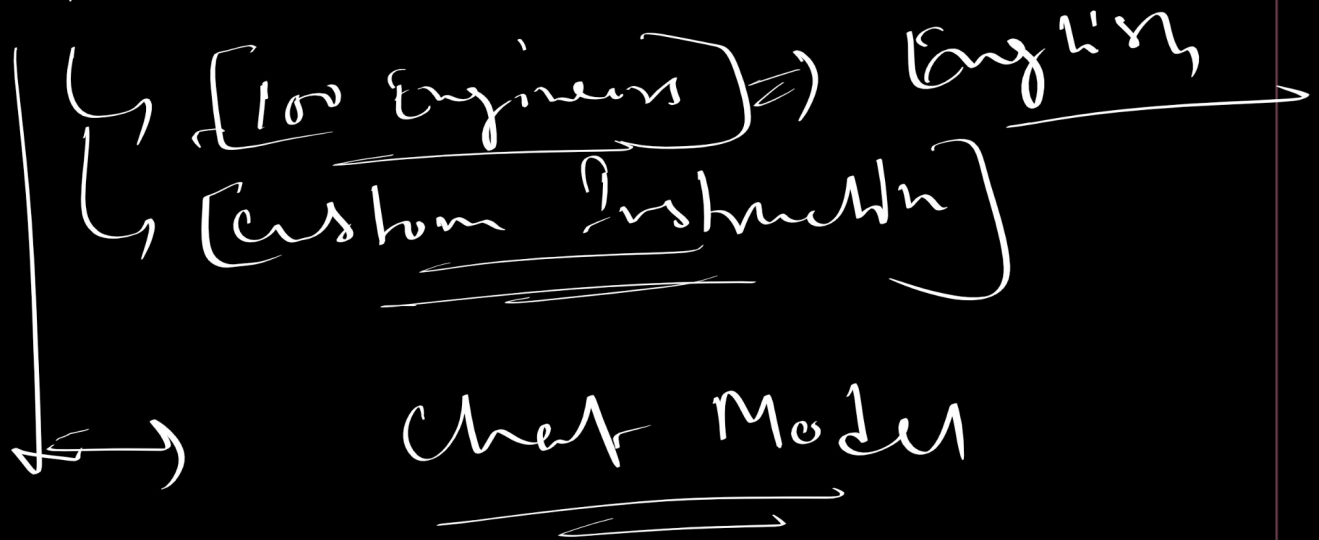
Hands-on

- LLM model vs. chat model
- chatbot with domain specific Instruction
- Expose app as API (LangServe)
- Chatbot conversation memory
- few-shot learning
- Agent - Tools - LangGraph
- SAP - Langchain - SQL Agent  
HANA cloud - BTP

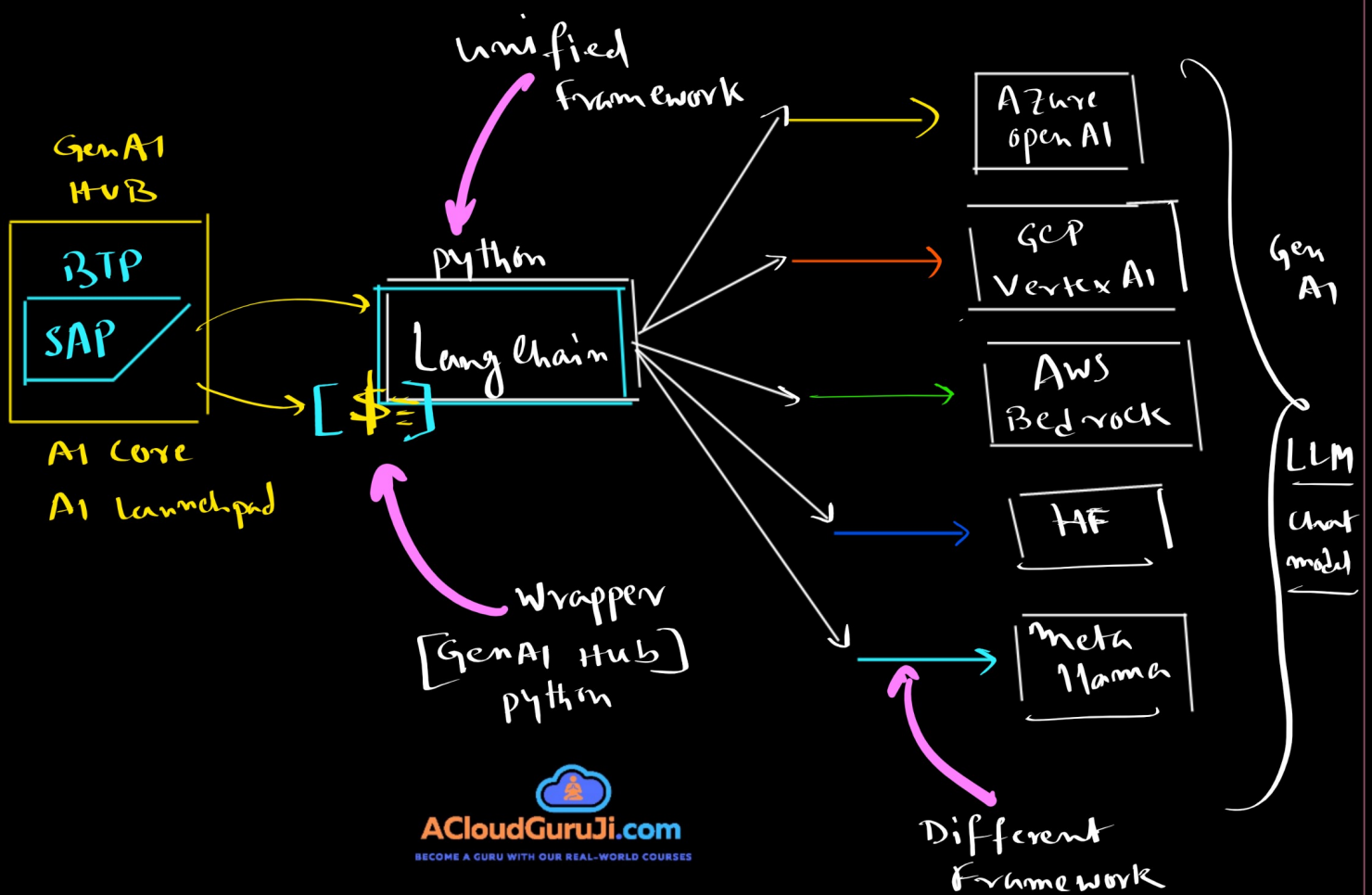
TB

(100) → ~~LLM Model~~

4874...







SAP AI Launchpad nexgen-ai-api (default)

Operations / All Scenarios / Scenario Details

### foundation-models

Overview Executables (4)

Serving Executables (4)

Name	Executable ID	Description	Scenario Version	Created On
ai-core-opensource	ai-core-opensource	AI Core executable for Opens... <a href="#">Show More</a>	0.0.1	Nov 21, 2023, 3:11:52 PM
aws-bedrock	aws-bedrock	AI Core executable for AWS B... <a href="#">Show More</a>	0.0.1	May 29, 2024, 7:48:12 PM
azure-openai	azure-openai	AI Core executable for Azure ... <a href="#">Show More</a>	0.0.1	Nov 21, 2023, 3:11:52 PM
gcp-vertexai	gcp-vertexai	AI Core executable for GCP V... <a href="#">Show More</a>	0.0.1	Apr 7, 2024, 4:38:54 AM