

Chatbot 的对话式交互

洪强宁 @ 爱因互动
ECUG 2017





@hongqn



1995



2002



2006



2014



2016

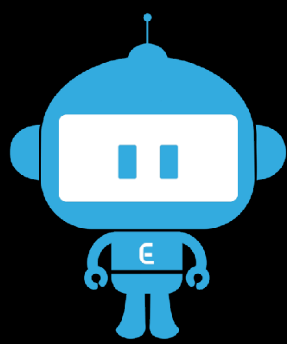
EN+ 爱因互动

Conversation as a Service

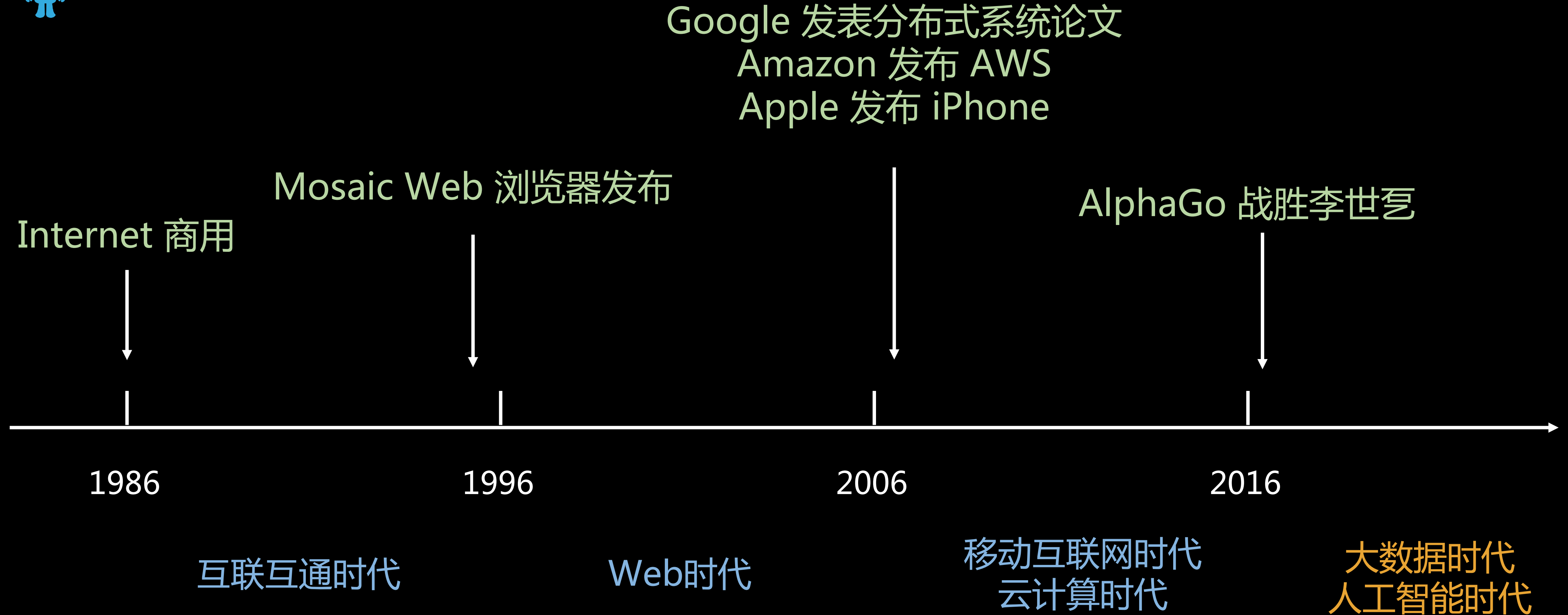
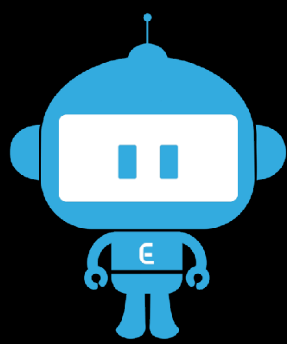
对话 + 人工智能

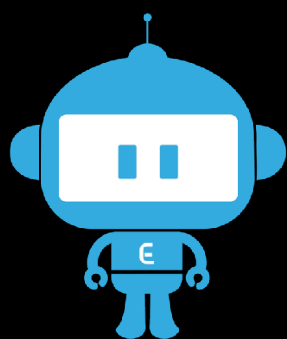
精准个性化推荐，促进交易转化



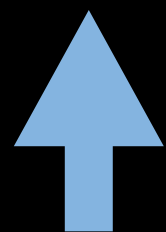
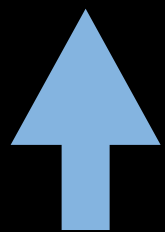


人工智能时代即将正在来临



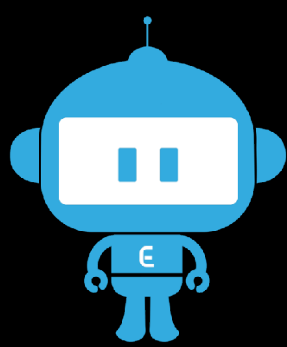


人工智能

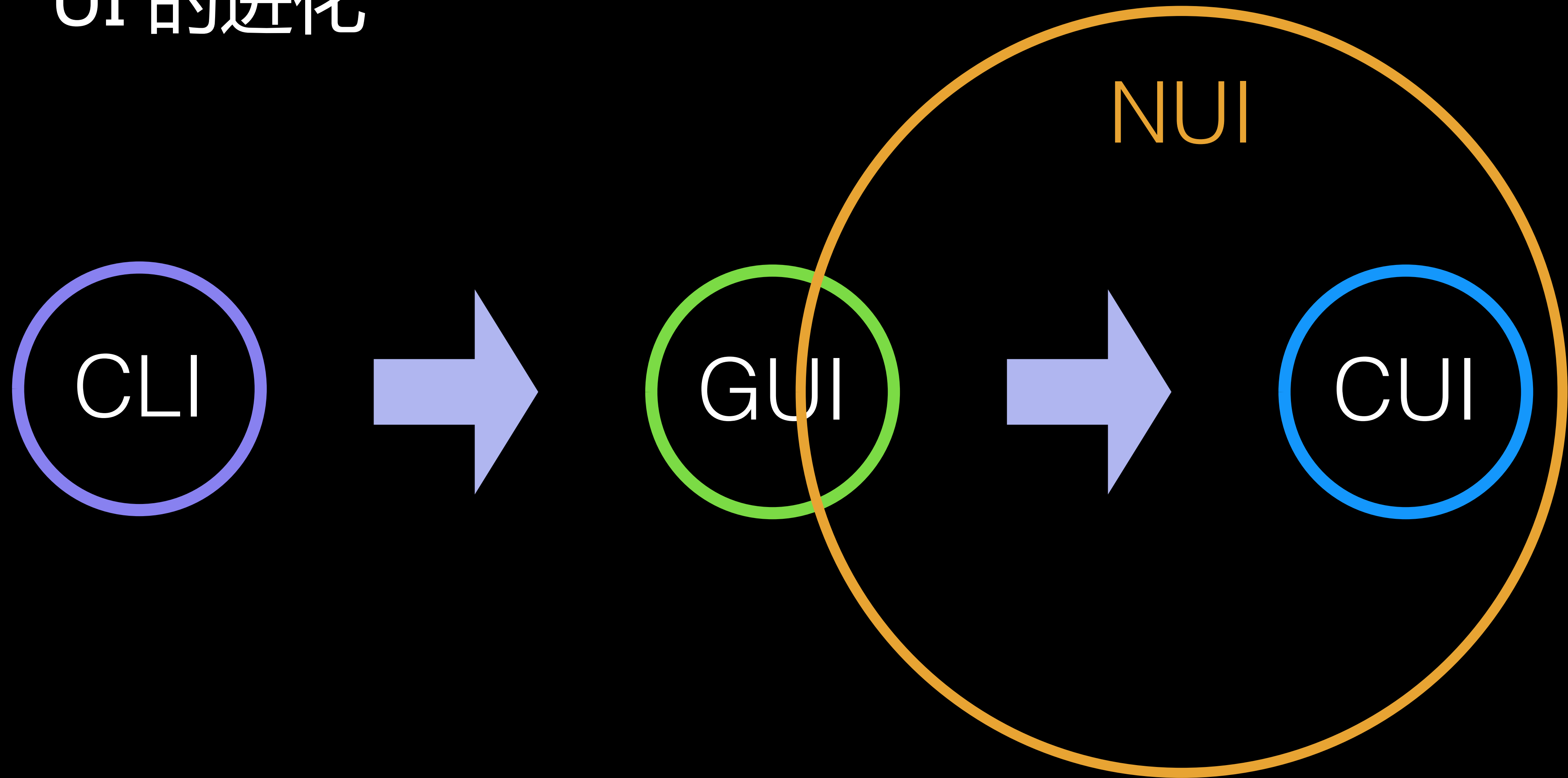


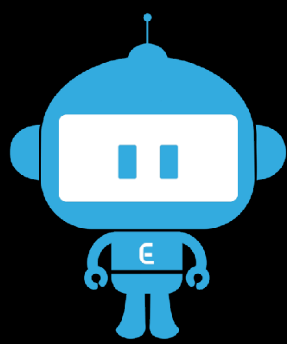
大数据

云计算



UI 的进化





GUI

CUI

VS

重广度

重深度

空间感

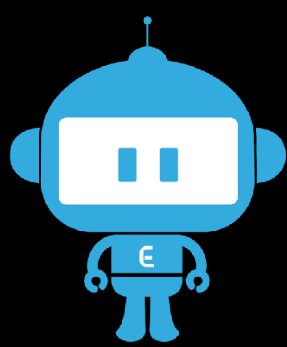
时间感

共性

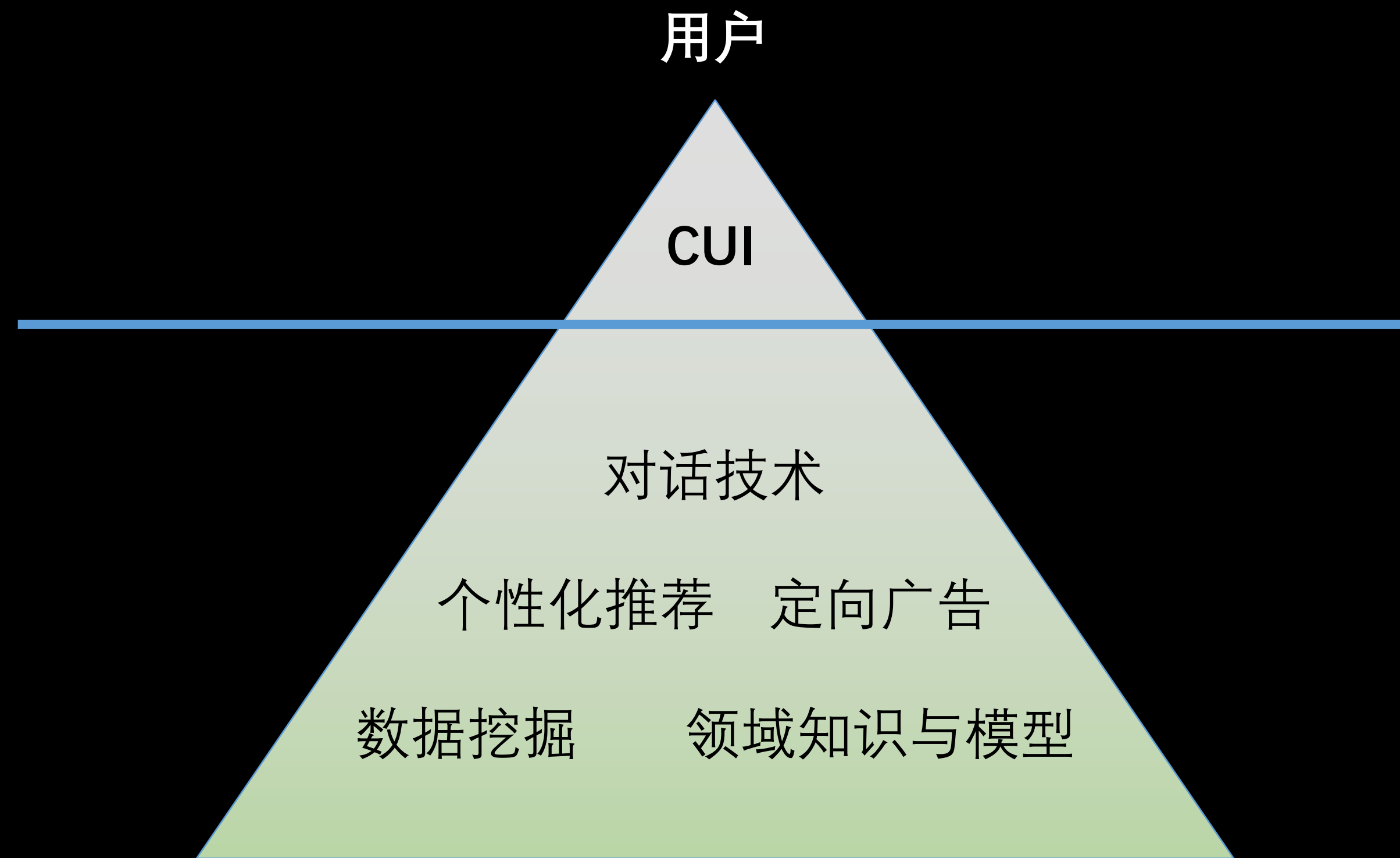
个性

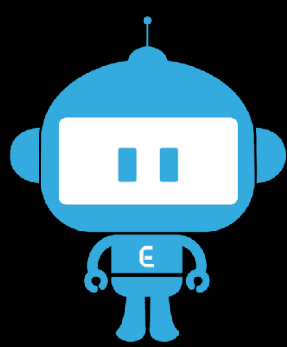
稳定

进化



对话作为粘合剂





对话机器人的应用场景



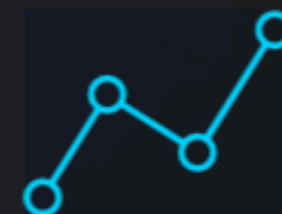
个人信息助理

信息整理收集
行程/会议安排
写作助手
...



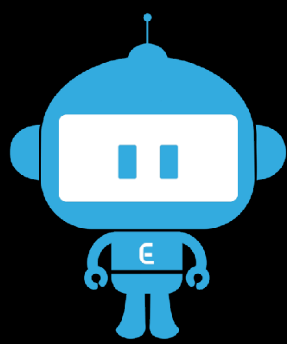
客服/导购机器人

信贷员/理财师
3C 产品导购
化妆品导购
保健品导购
...

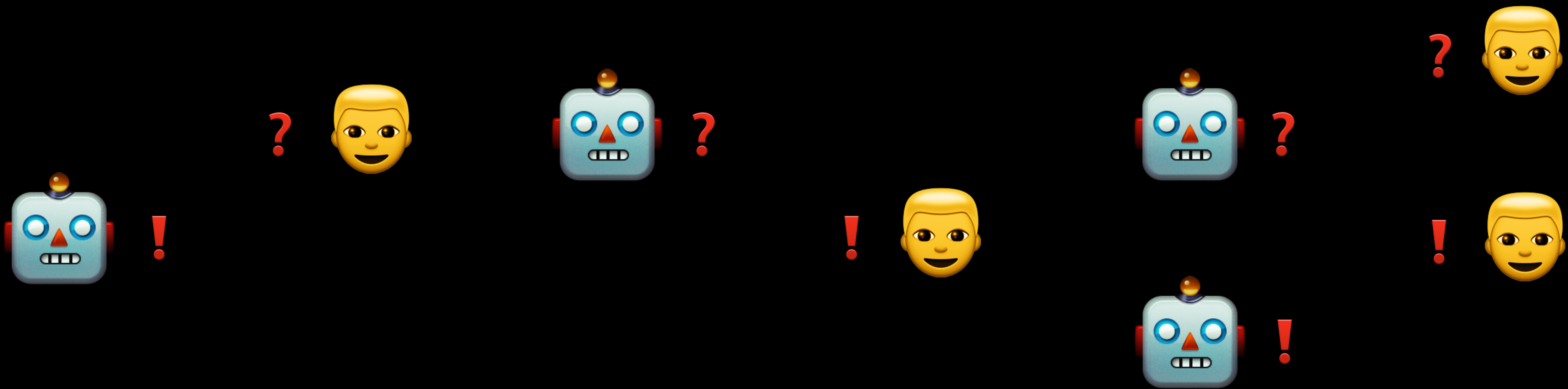


泛娱乐/教育聊天机器人

车载娱乐
拟人聊伴
初级技能传授
...



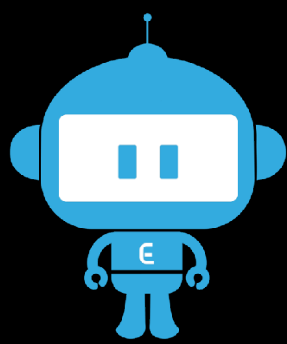
对话的不同形态



人主导

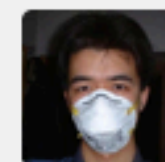
机器人主导

交叉主导



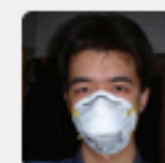
人主导的对话 - 单轮问答

什么是外汇储备

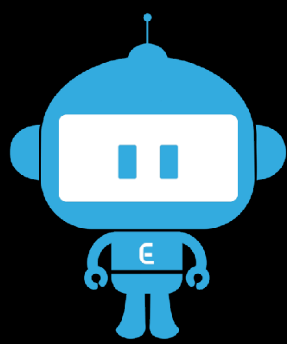


外汇储备又称为外汇存底,是一个国家货币当局持有并可以随时兑换外国货币的资产。

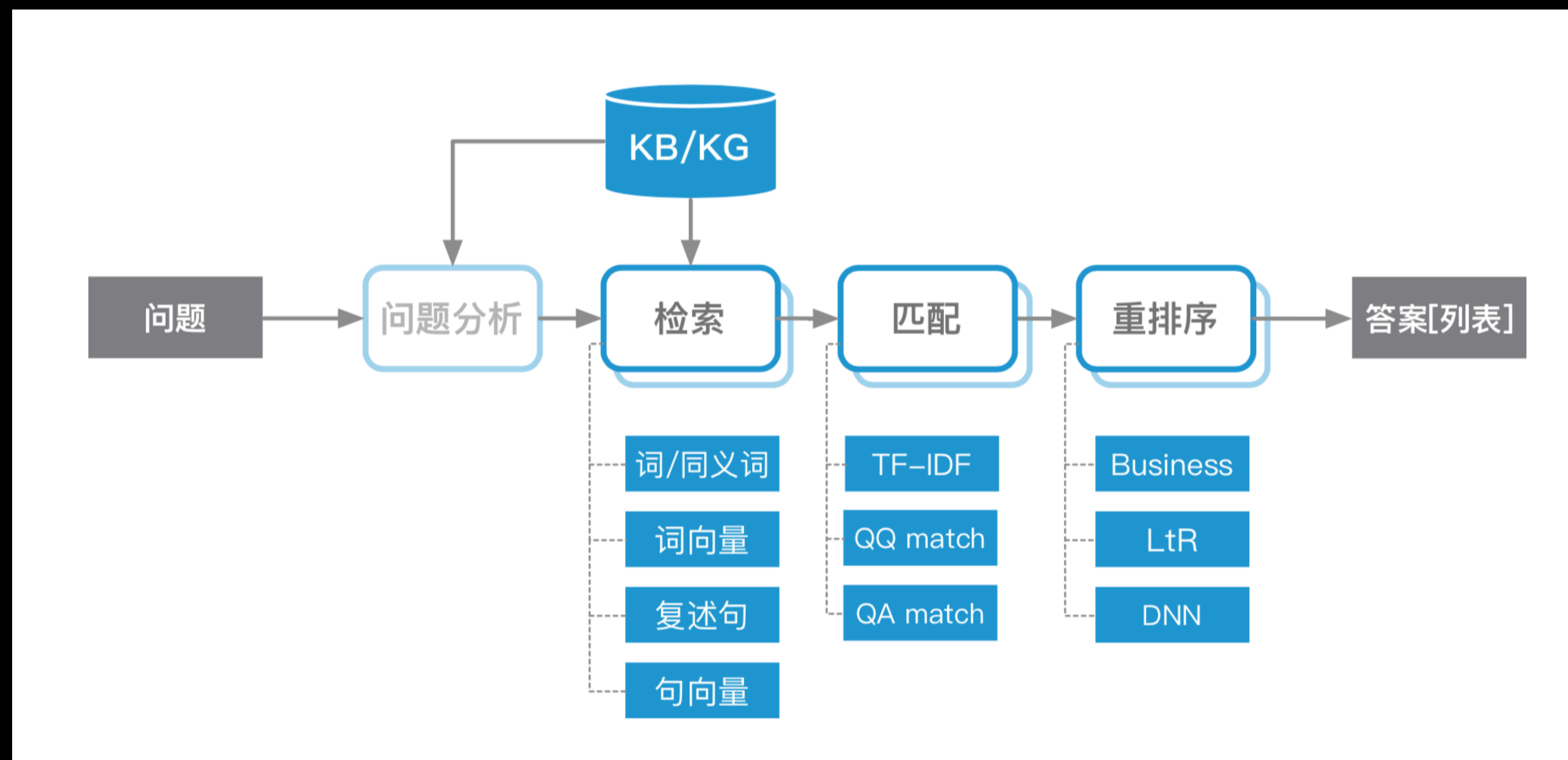
解释一下互联网征信

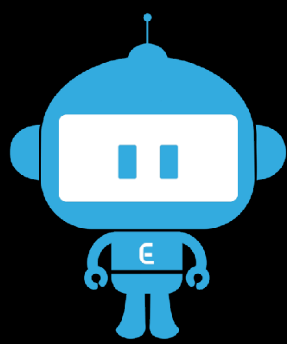


互联网征信是指狭义上采集个人或企业在互联网交易或使用互联网服务中留下的行为数据,并利用大数据、云计算等技术进行信息评估的活动。广义的互联网征信指采集个人或企业使用互联网金融服务所留下的信贷等数据以及通过线下渠道采集的公共信息等数据,并进行信用评估的活动。



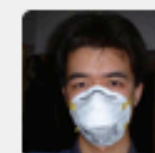
FAQ-Bot





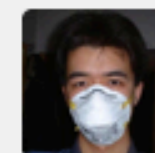
人主导的对话 - 多轮问答

什么是基金

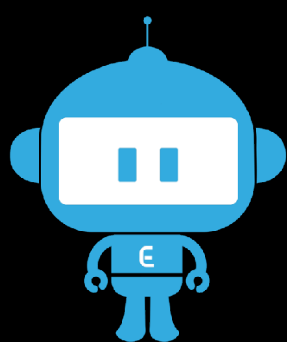


从广义上说，基金是指为了某种目的而设立的具有一定数量的资金。主要包括信托投资基金、公积金、保险基金、退休基金，各种基金会的基金。我们现在提到的基金主要是指证券投资基金。

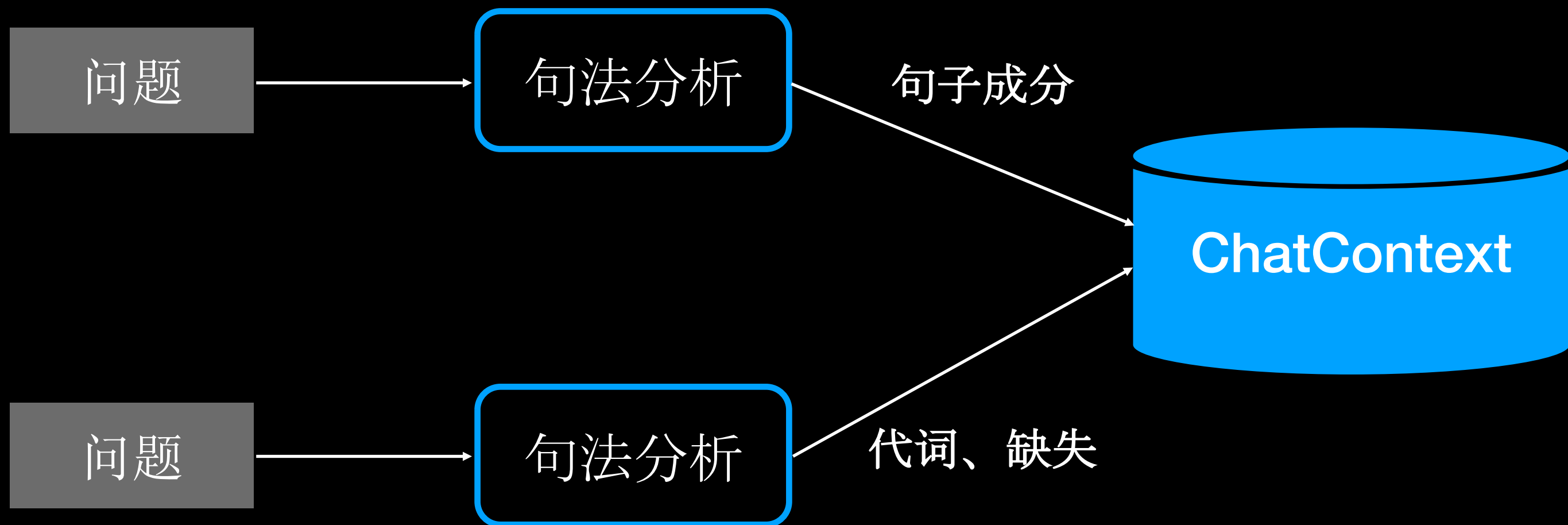
那有风险吗

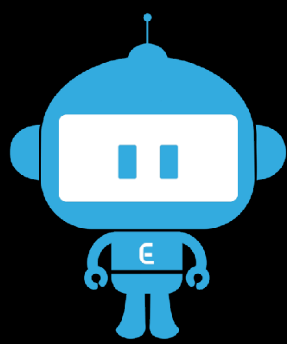


任何投资行为都会有风险。投资基金的特点在于由专业人士管理，进行组合投资分散风险。但也并非绝无风险。不同种类的基金，其风险程度各异。如：积极成长型的基金较稳健成长型的基金风险大，投资科技型股票的基金较投资指数型基金风险大，但投资此类基金收益也比较大。



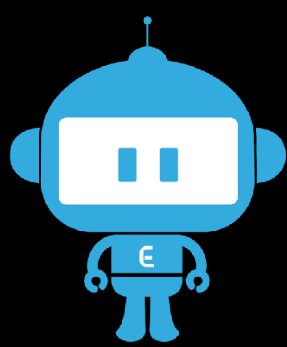
指代消解



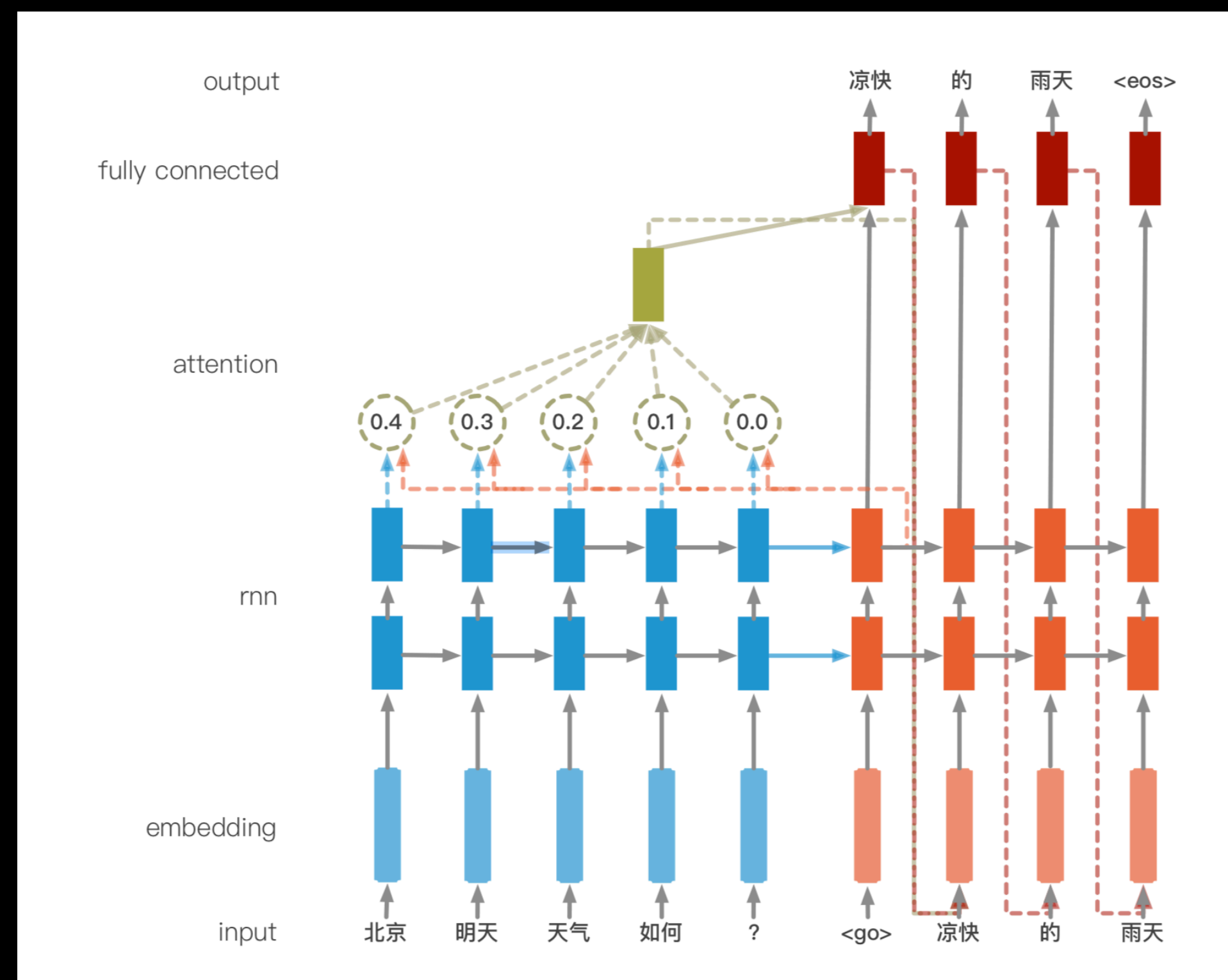


人主导的对话 - 闲聊



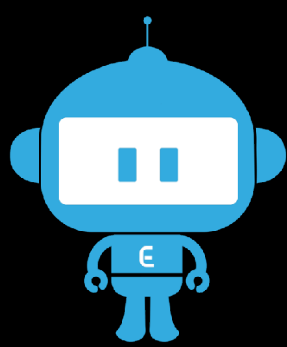


Chitchat-Bot

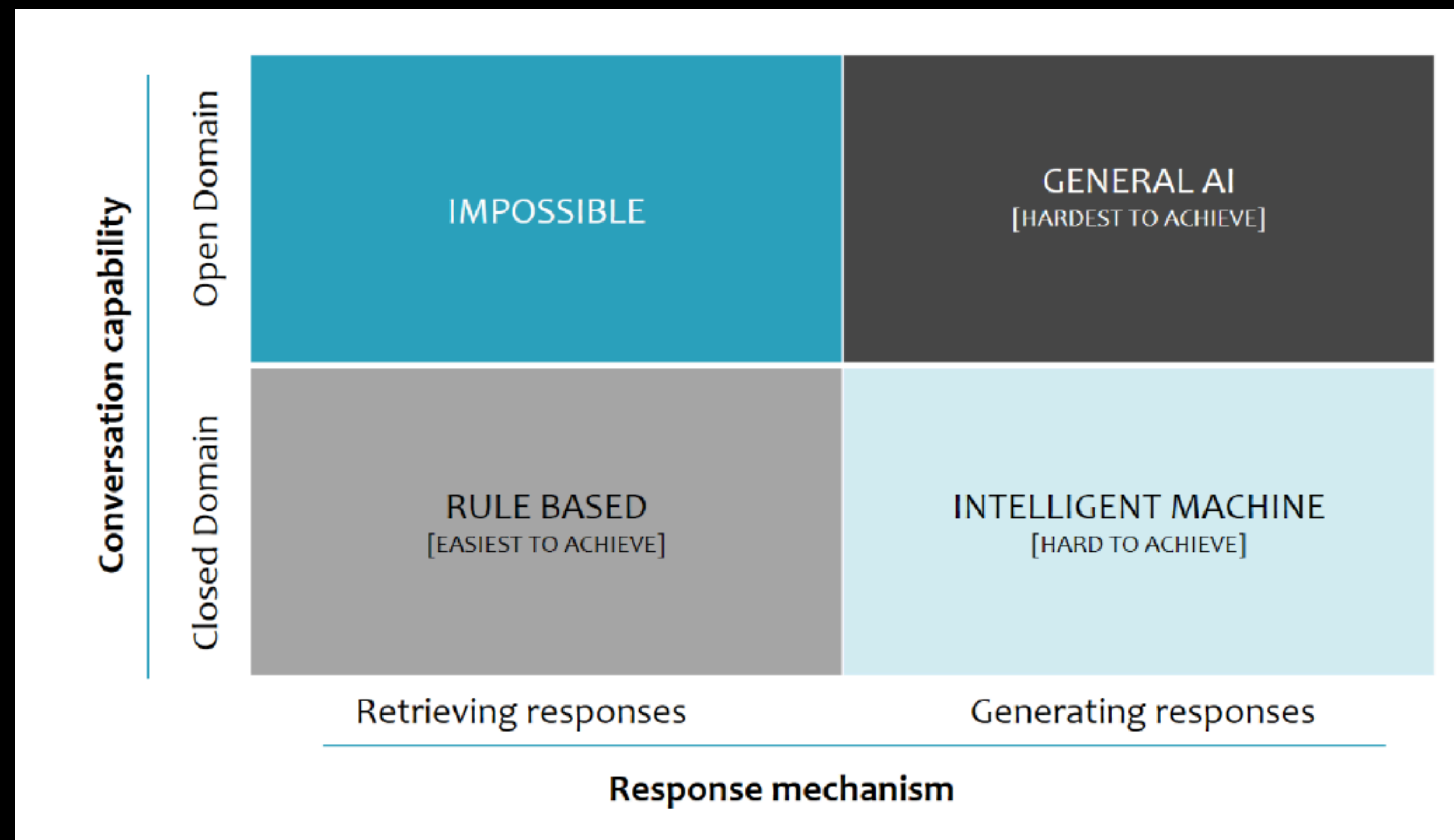


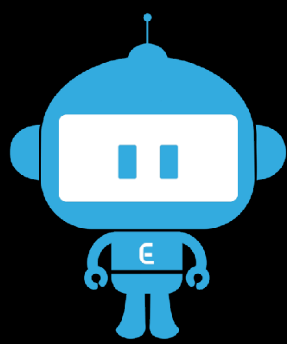
增强：

- 注入背景信息
- 注入个人信息
- 注入知识库信息
- 引入上下文



开放域 vs. 封闭域





机器人主导的对话 - 采集信息

E

您的投资目标是?

E

1. 养老

2. 子女教育

3. 购置房产

4. 享受生活

5. 赚更多的钱

子女教育



E

唉~理解, 一切都为了孩子 \ (^o^) /

E

如果能获得稳定收益, 您倾向于投资多久?

E

1. 1年以内

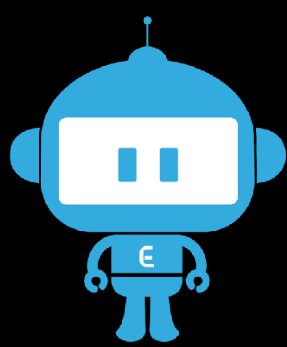
2. 1-5年

3. 5-10年

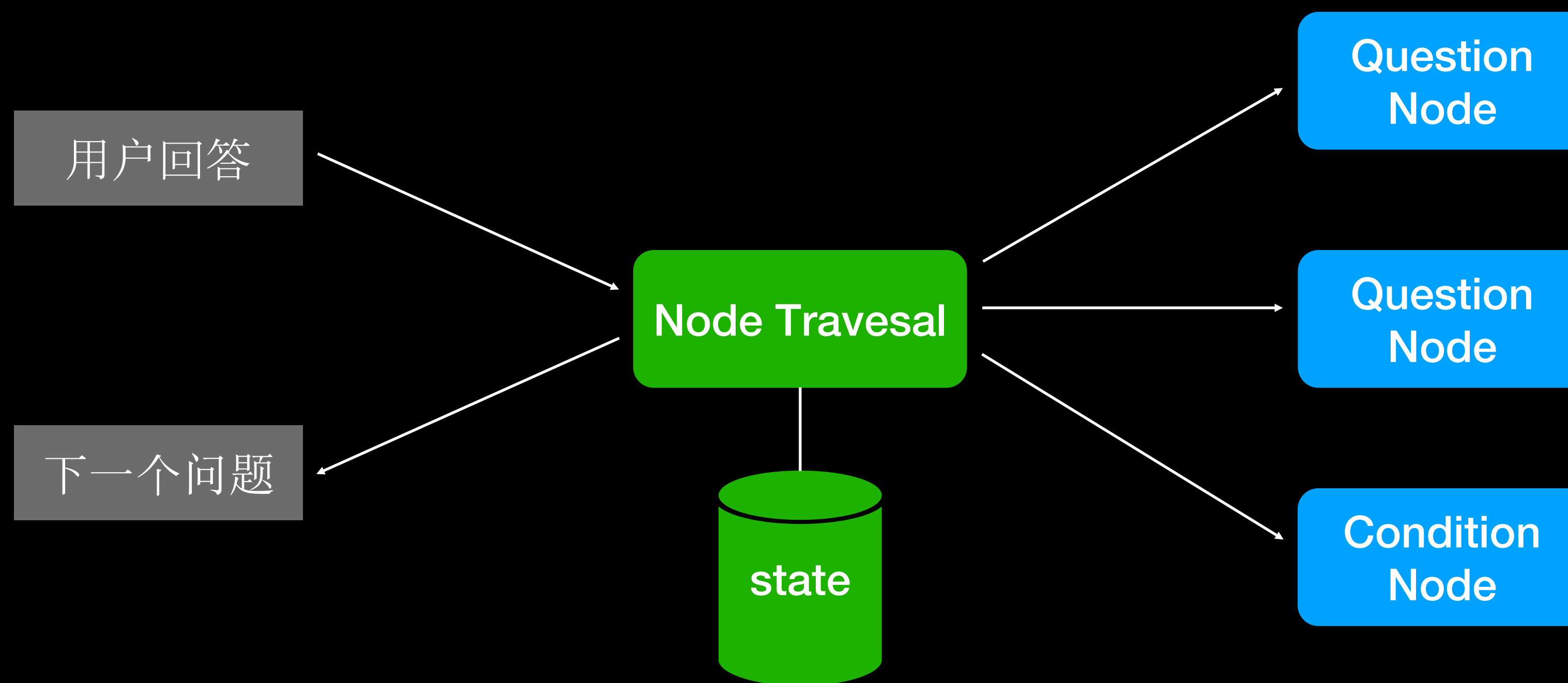
4. 10年以上

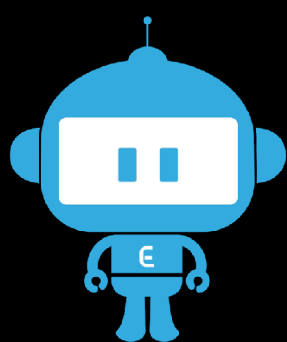
2





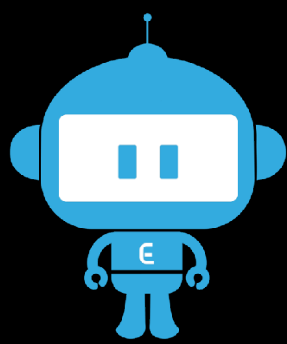
Form-Bot



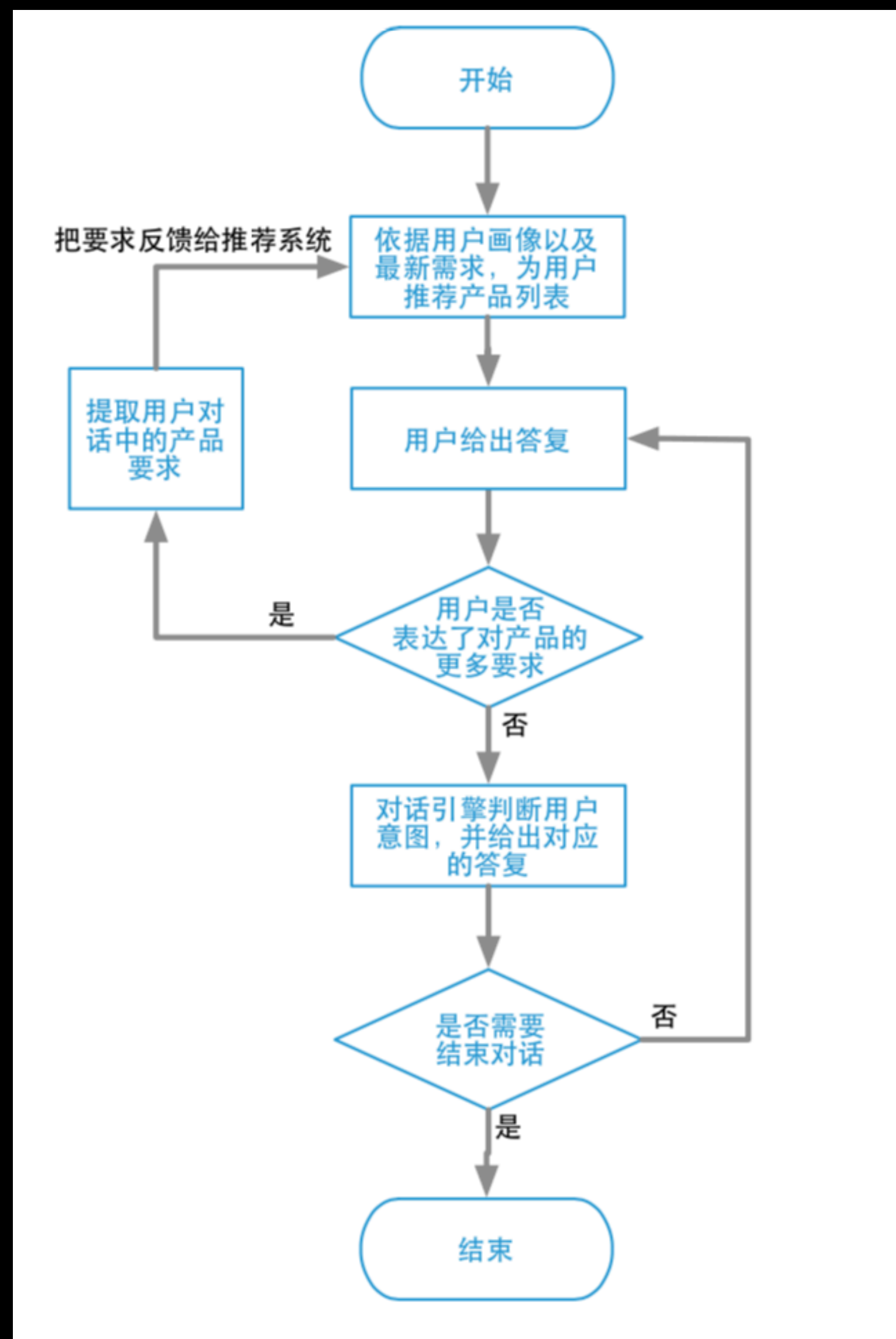


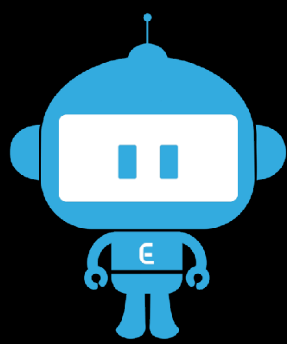
机器人主导的对话 - 推荐产品



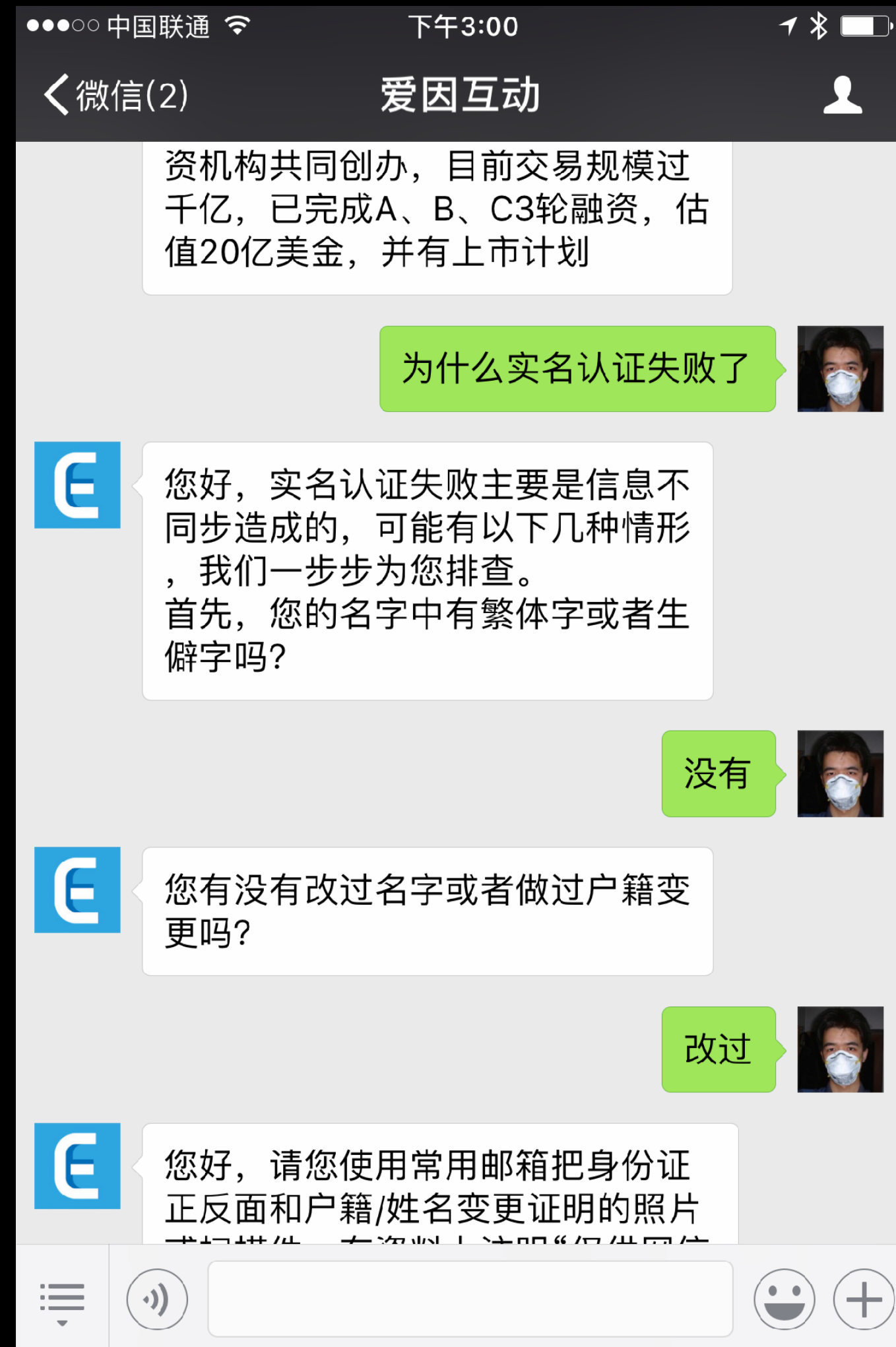


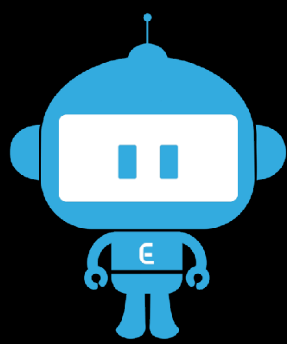
Rec-Bot



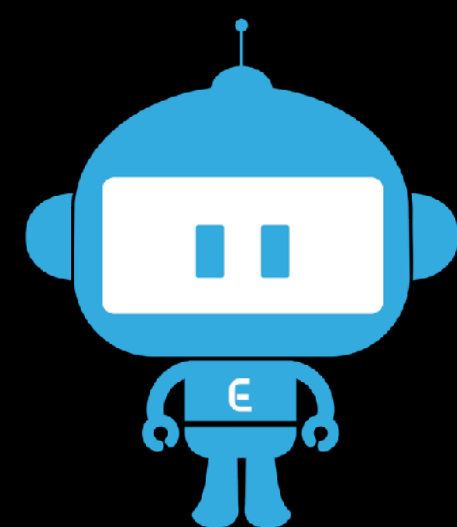


人和机器人交叉主导的对话 - 分支问答



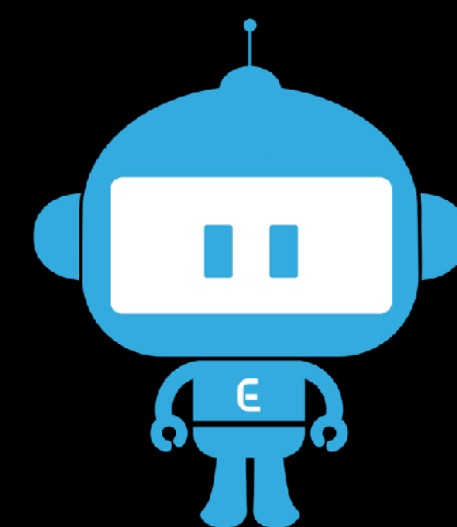


FAQ-Bot + Form-Bot

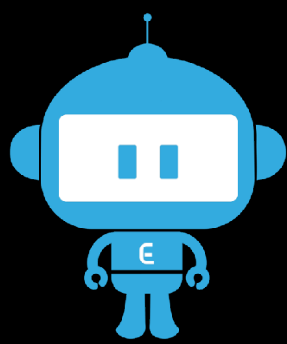


FAQ-Bot

Q Matched

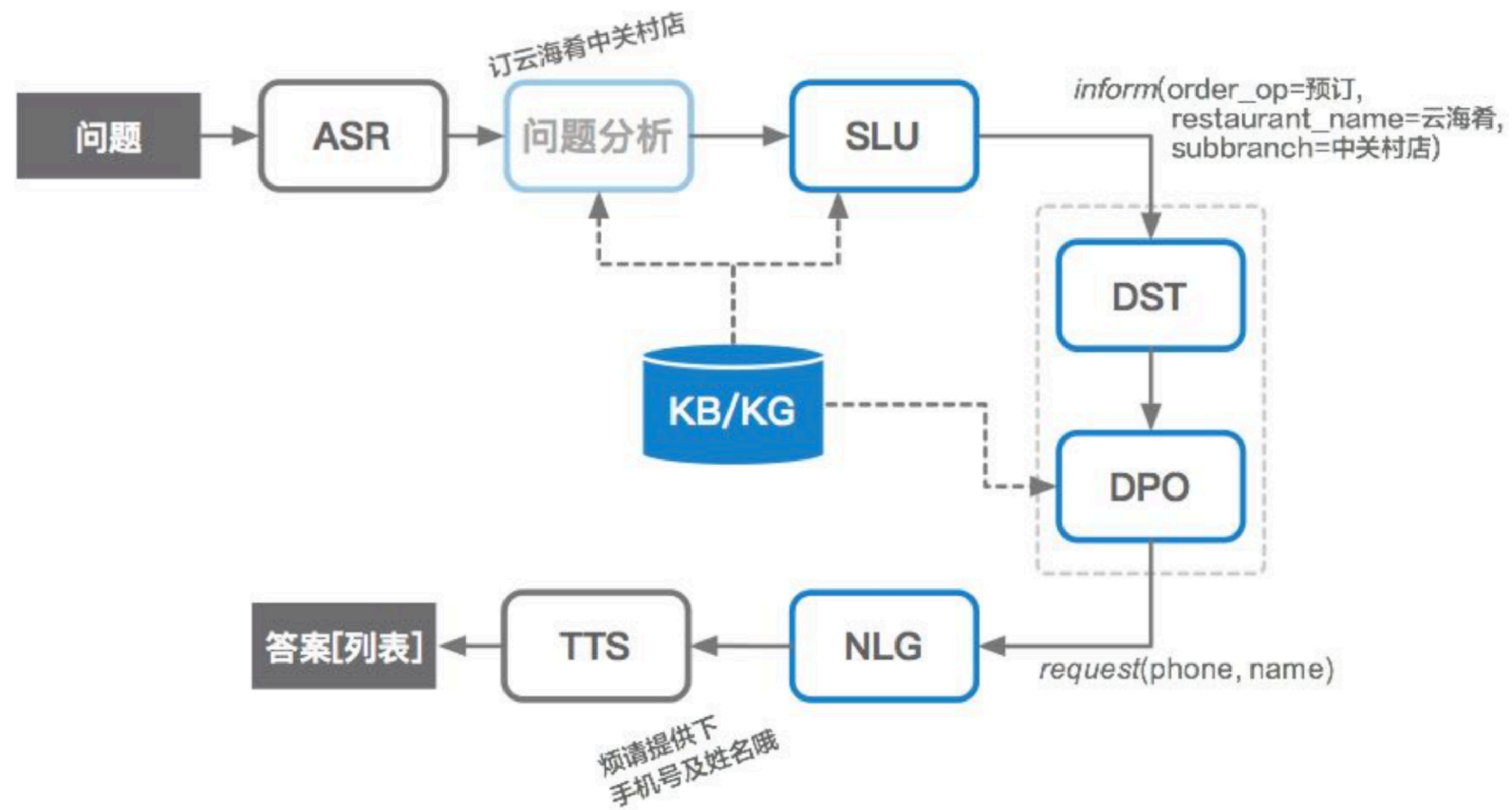
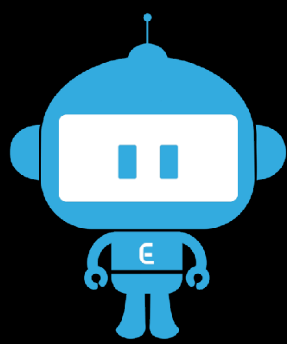


Form-Bot

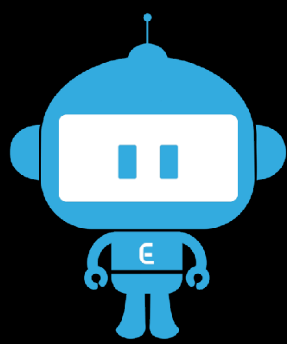


人和机器人交叉主导的对话 - 多轮任务



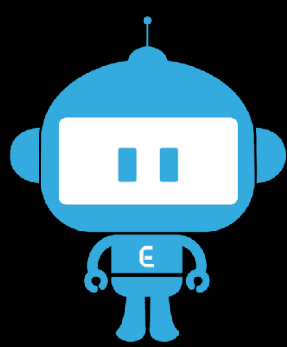


融合对话的不同形态



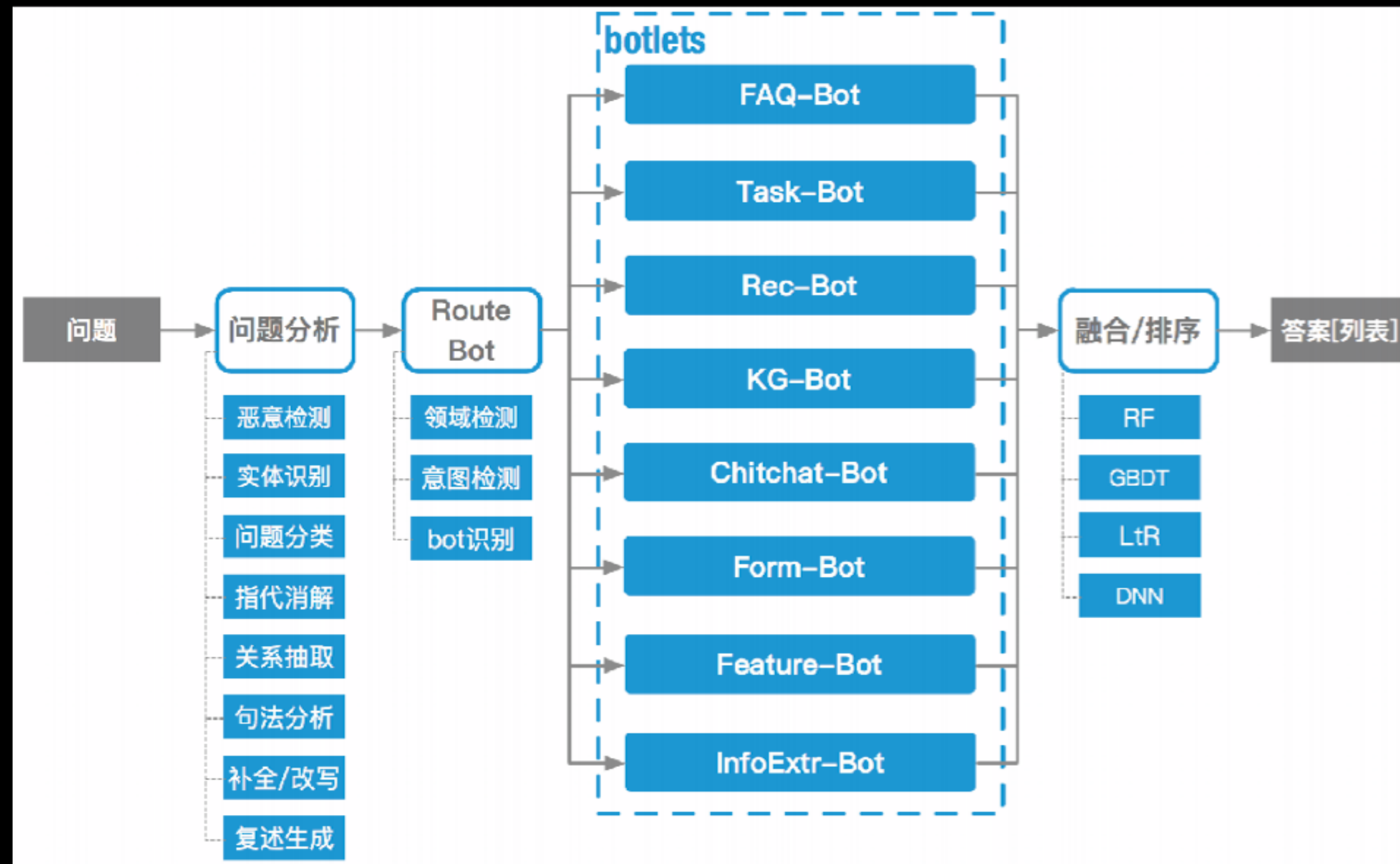
在不同对话模式中切换

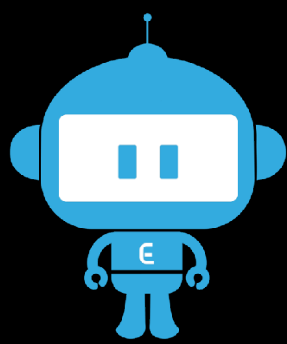
- 切换模式
- 返回会话
- 容错
- 兜底



DeepBot

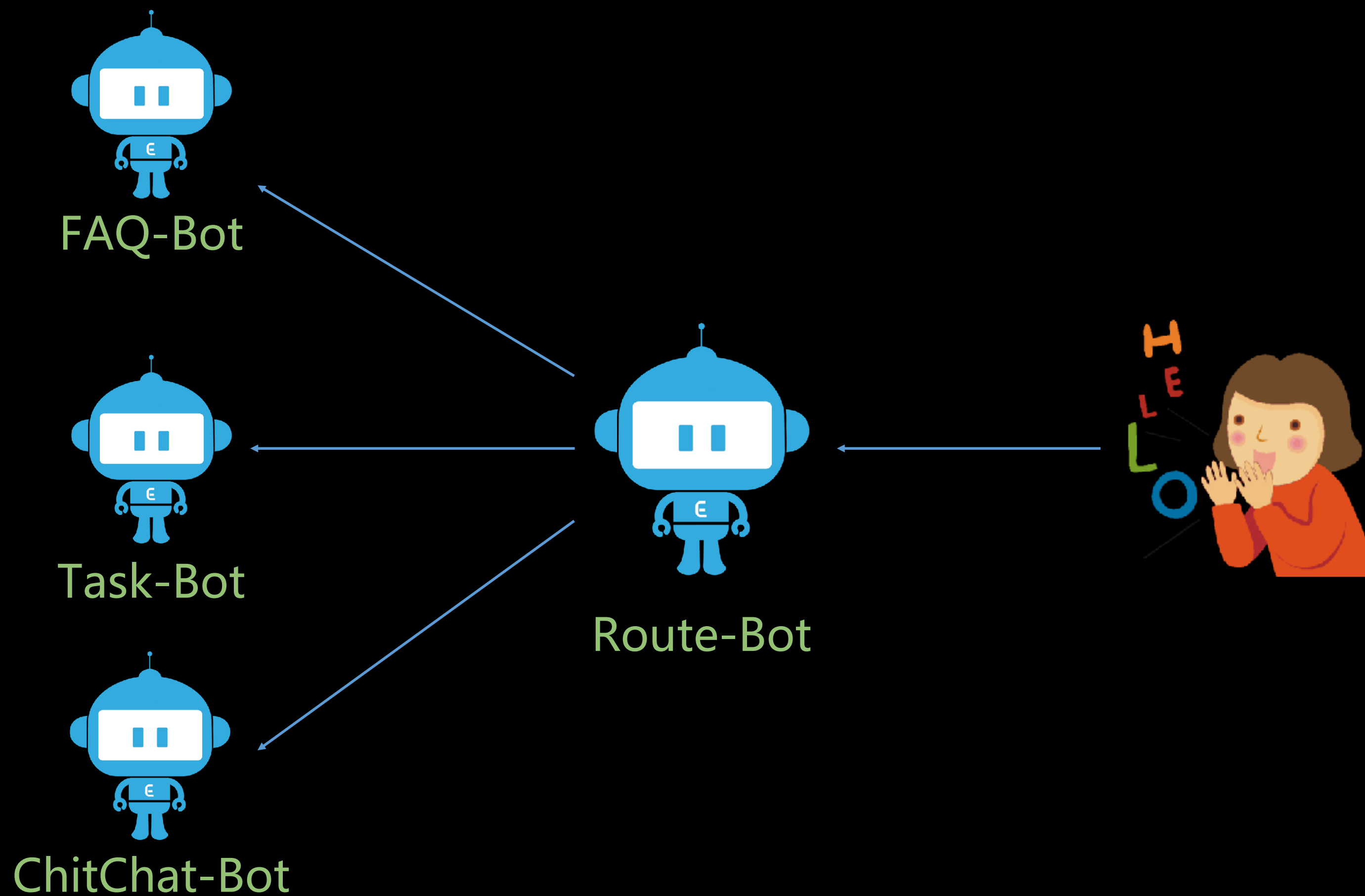
使用不同的框架和模型
解决不同的对话问题

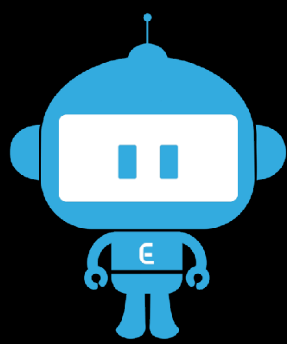




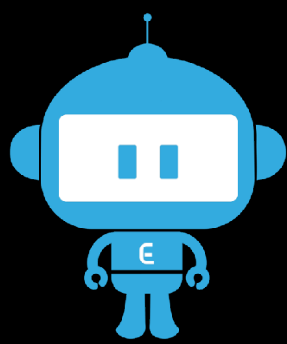
Route-Bot

- Botlet Protocol
- Pre-route
 - “波动率是什么意思？”
- Post-route
 - “希望已经解答了你的疑问，让我们继续吧”
- current_botlets
- 短期记忆: ChatContext
- 长期记忆: UserProfile

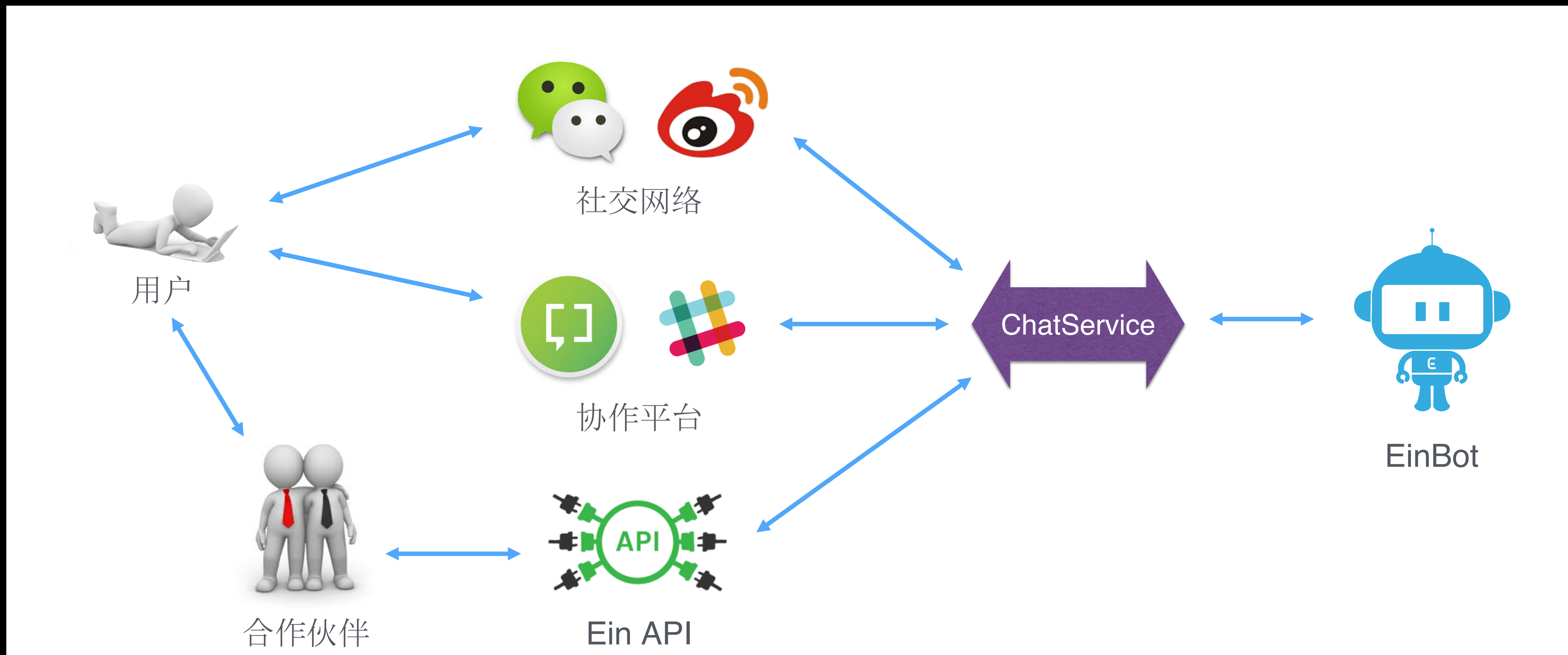


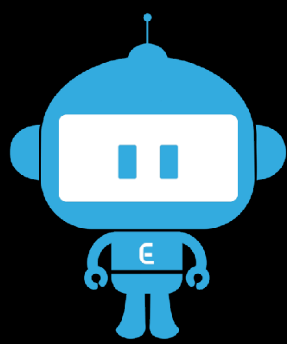


Chatbot and Cloud



SaaS: Conversation as a Service





PaaS

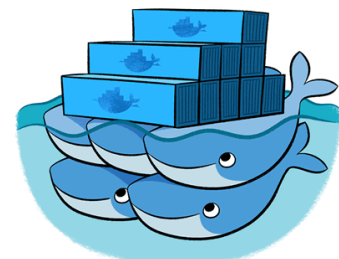
机器人 PaaS

subot

应用 PaaS



容器编排



Docker Swarm



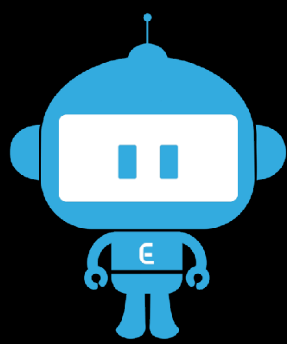
kubernetes

IaaS

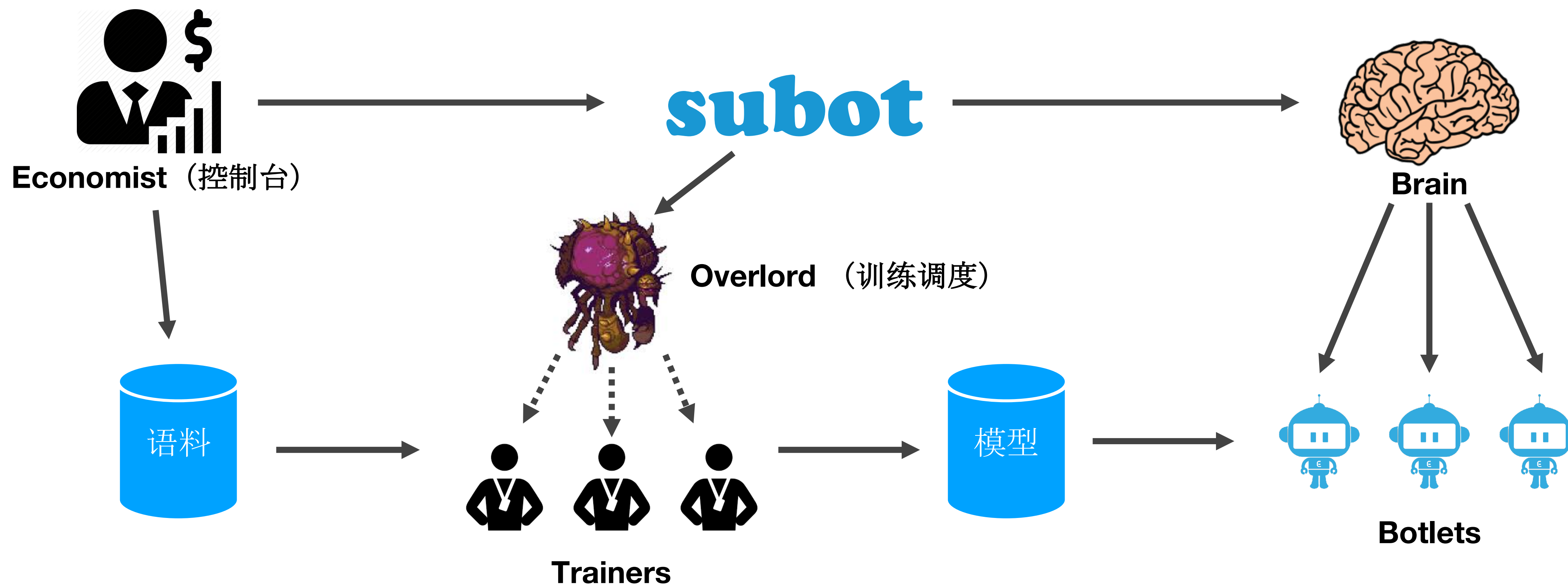


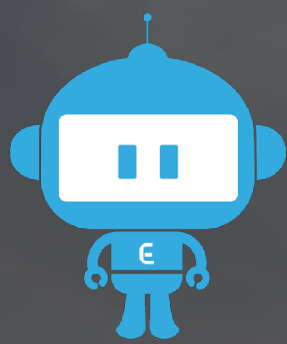
vmware®





微服务





对话机器人的大航海时代