

Task based assistant core challenges: Dialogue Management

Robust language sensing

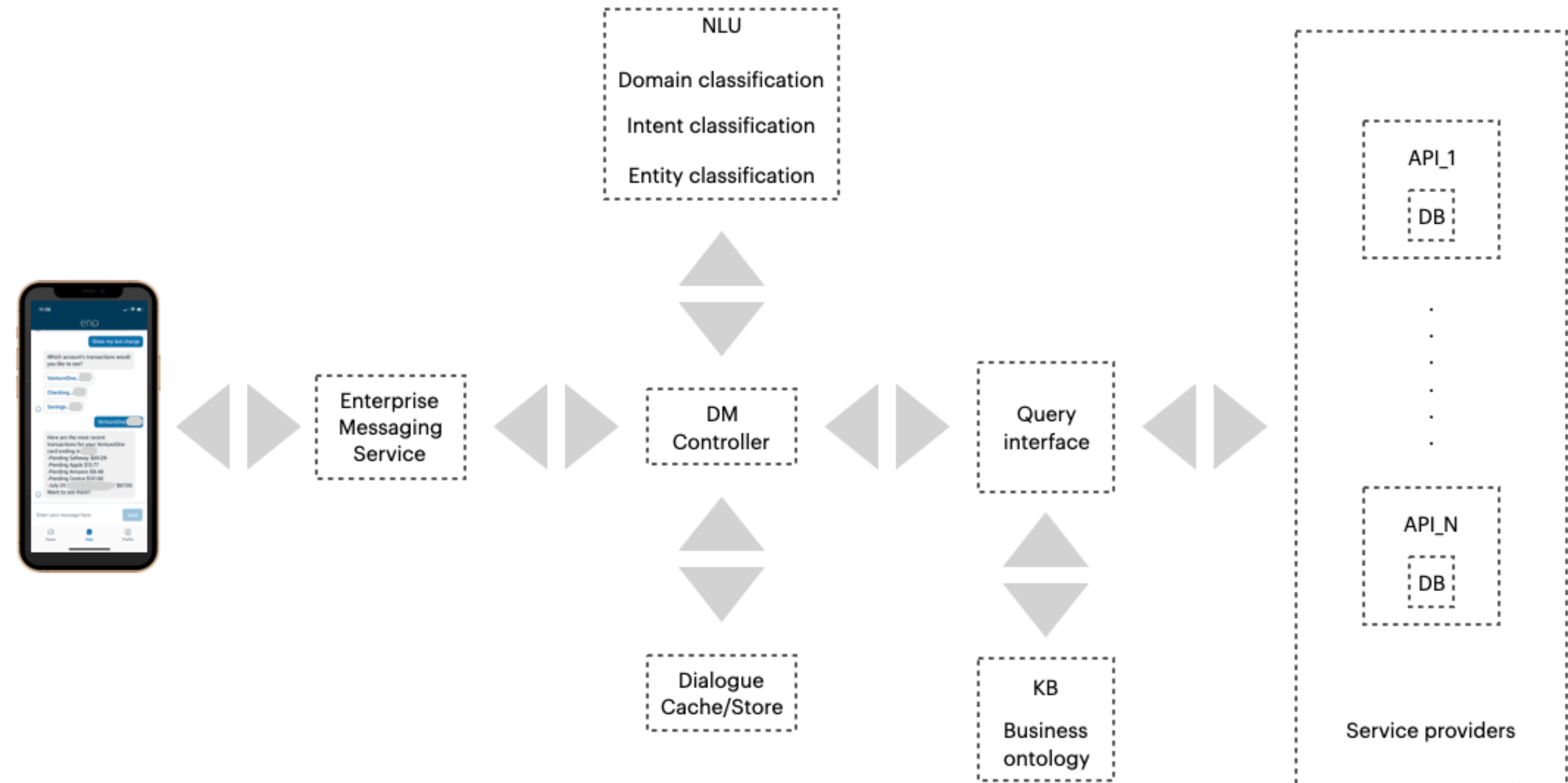
- * Spoken vs typed
- * Slang vs formal
- * Typos & dialects
- * Microphone quality
- * Intent, entity, domain rec.
- * Implicit entities

Dialogue state management

- * **Efficient slot filling**
- * **Multi intent requests**
- * **Contextual awareness**

System scale

- * Multi-domain support
- * 3rd party integrations
- * Performance



Generic dialogue system architecture

Dialogue management example

Hi, tell me how much \$\$\$ I owe on my card this month and when is it due?

Sure thing Janice. First, for which card would you like your balance?

LiquidCash

Your LiquidCash card ending in 5459 has a balance of \$1003.23. The next payment for this card is due 04/11/21, would you like to make a payment?

Sure, \$300 from my Vault acct. but on the due date!!!! bye

Ok, I've scheduled a payment of \$300.00 from Vault checking to your LiquidCash account on April 11th, 2021. Have a great day!

```
{
  "identity": "janice-beverly-123",
  "utterance": "Hi, tell me how much $$$ I owe on my card this month and when it is due?",
  "entities": [
    {
      "name": "amount",
      "span": "how much $$$",
      "resolvedValue": null
    },
    {
      "name": "account",
      "span": "my card",
      "resolvedValue": null
    },
    {
      "name": "date",
      "span": "this month",
      "resolvedValue": "04/07/2021"
    },
    {
      "name": "date",
      "span": "when it is due",
      "resolvedValue": null
    }
  ],
  "intents": [
    {
      "name": "retrieveBalance",
      "slots": {
        "accountType": "credit",
        "accountNumber": null,
        "productName": null,
        "date": "04/07/2021"
      },
      "slotRequests": [
        "amount"
      ]
    },
    {
      "name": "retrievePaymentDueDate",
      "slots": {
        "accountType": "credit",
        "accountNumber": null,
        "productName": null
      },
      "slotRequests": [
        "date"
      ]
    }
  ]
},
```