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Practical Applications of AI - Real World Examples

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Chatbots

Nathan Dickerson

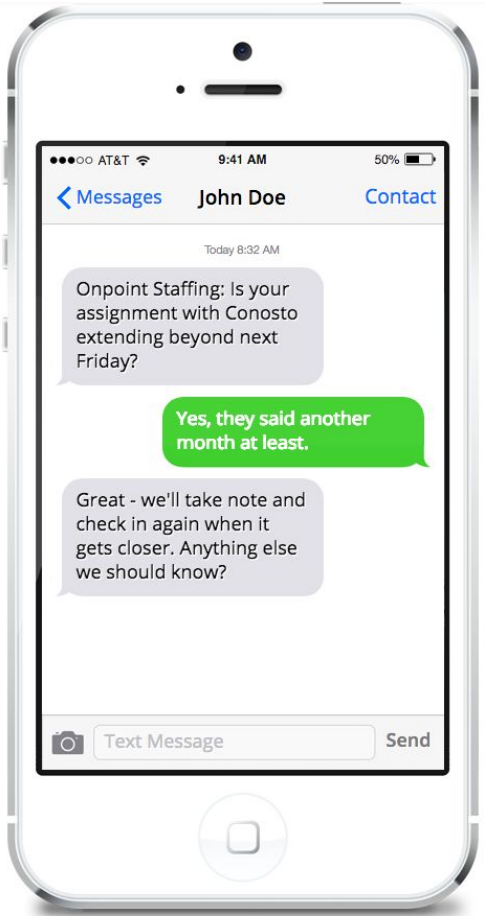
Chatbot Ideation

- Reminders
- Scheduling
- Screening
- Follow Up

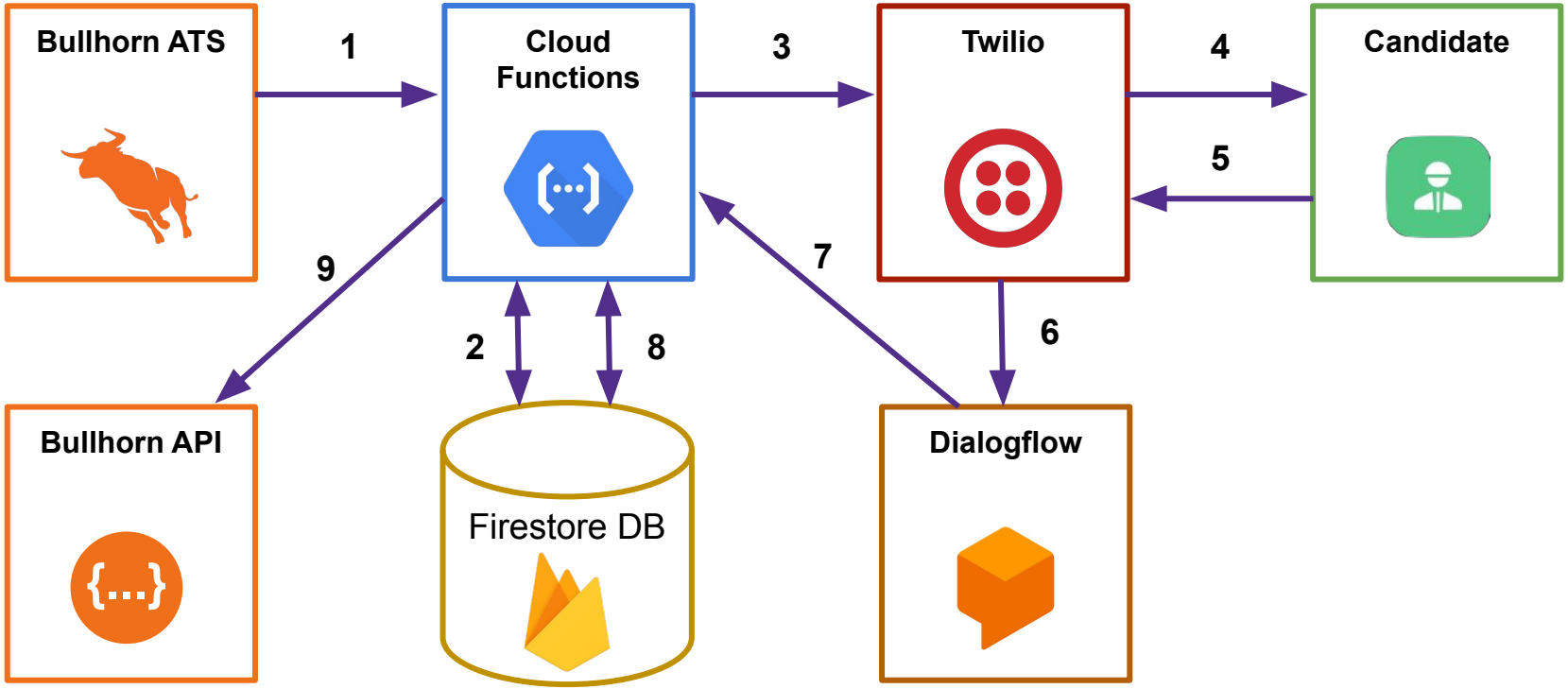
Redeployment Chatbot

Improve redeployment by fixing assignment length accuracy.

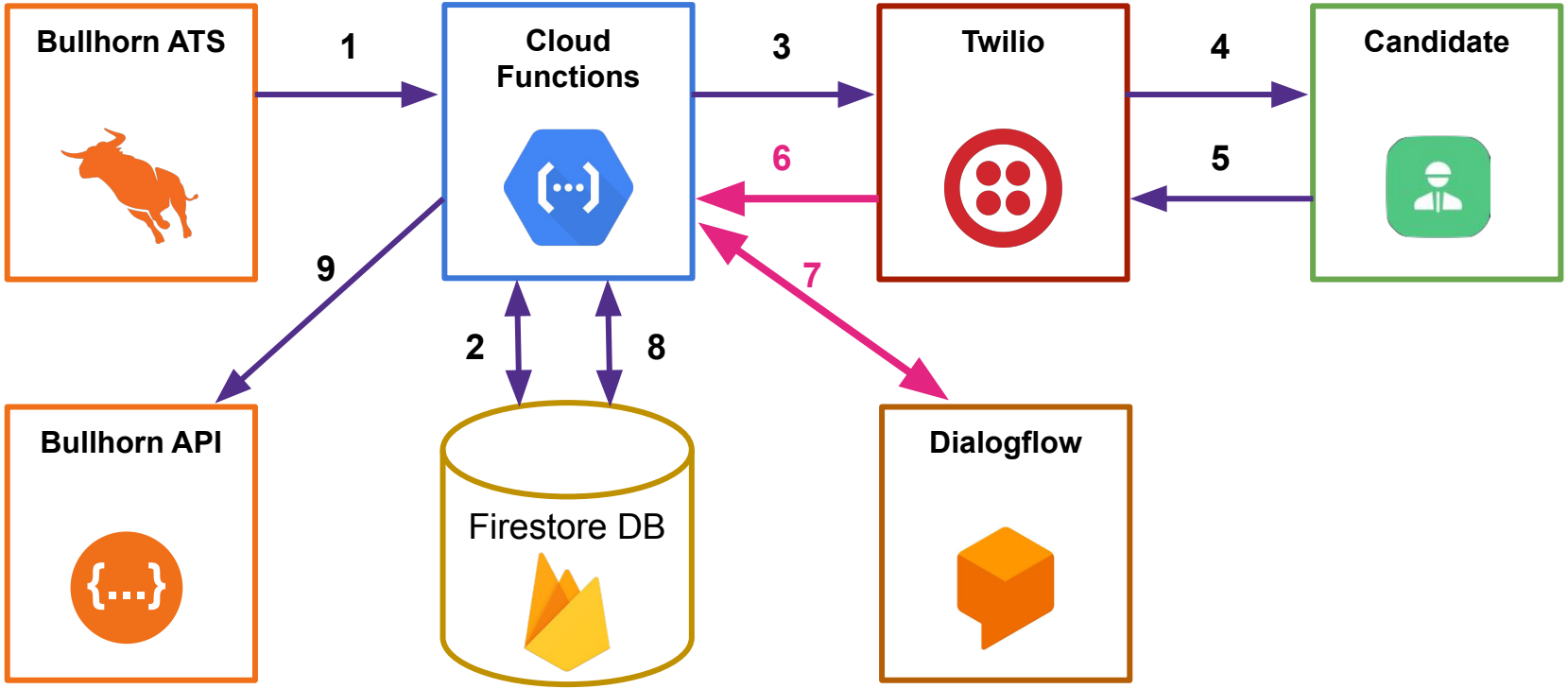
- Problem Statement:
  - Low redeployment correlates with not knowing when assignments end
  - Too high effort to check in with candidates constantly for end dates today
- Features / Benefits:
  - Automatic engagement with candidates and hiring managers to find out when end dates actually are
  - Enables pipeline of redeployment activities thanks to accurate data



How We Built This



How We Would Rebuild It



Lessons Learned

- Tech stack makes it easy to build out quickly
- 10% model training and 90% customization of business rules
- DialogFlow makes for a nice trainable ML text parser, but needs several layers of business logic before/after to be practical

Lessons Learned

- Using random number to text from is easy, but ineffective
- Difficulty finding a burning need that customers have that can be filled by chatbots

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Entity Relationship Mapping

Amir Kurtovic

Problem Definition

- Create a machine learning-driven system capable of automatically identifying entity relationships based on historical data

DEMO

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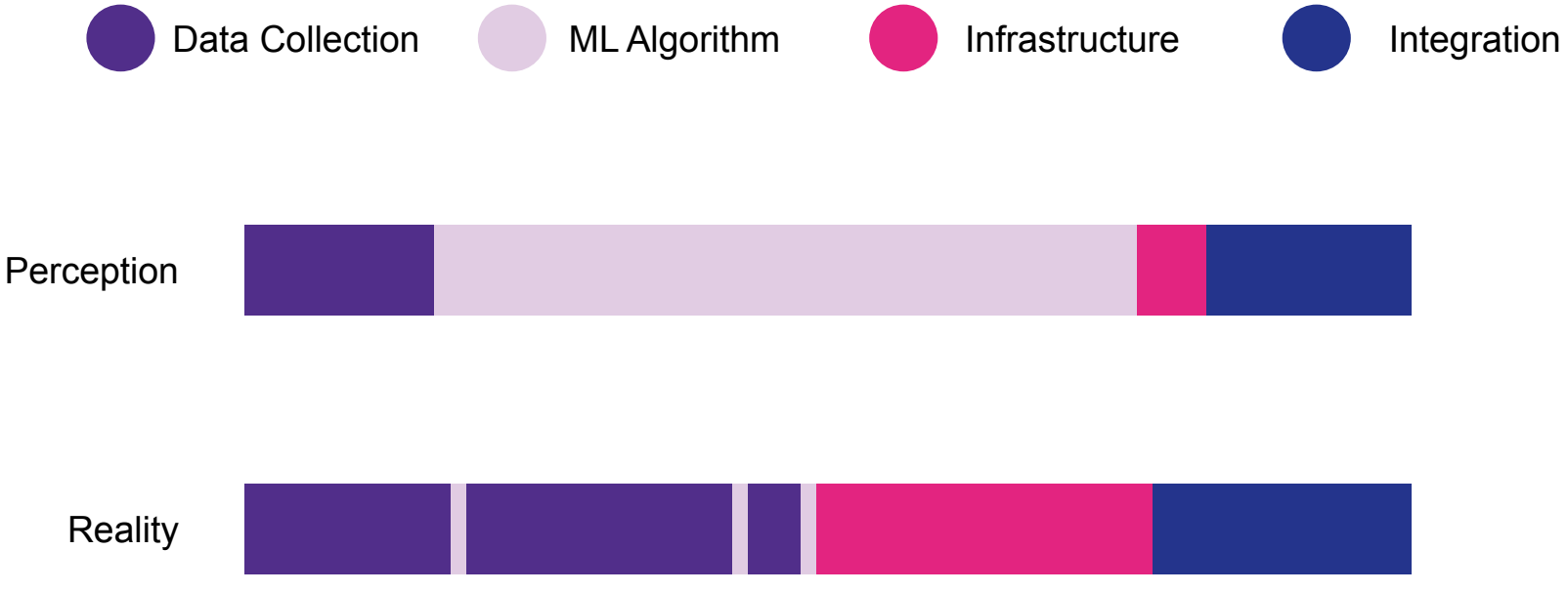
ML Project Phases



Problems We Faced

Data Collection

No existing labeled dataset

Data warehouse exports

Data Quality

Preprocessing pipelines

Storage

Balancing dataset distributions

ML Algorithm

Optimizing for business objective

Infrastructure

New API for interacting with hosted models

ETL Pipeline

Cloud Infrastructure configuration

Integration

New UI Components

Client onboarding process

Cloud functions

Organizational Challenges

- Hard to integrate ML projects into Agile/Lean development processes
- Accepting less than perfect performance
- Breaking down silos

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Automated Invoice Parsing

Lukas Neumann

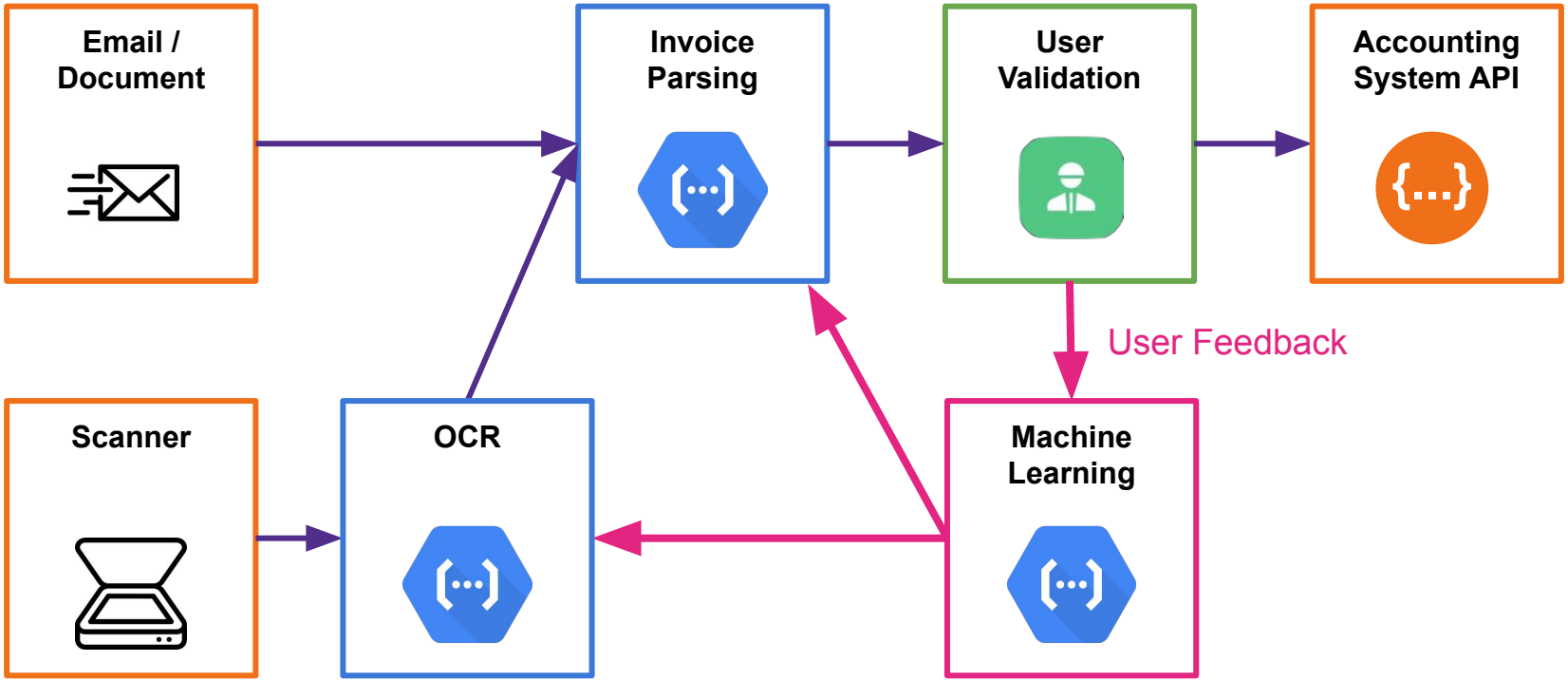
Automated Invoice Parsing

- GOAL: Eliminate manual data entry of incoming invoices
- We built a fully-customizable AI engine which automates document ingestion
  - Users define which fields they want to extract
  - They mark the fields in sample documents to generate training data

Automated Invoice Parsing

- The engine learns to automatically extract fields as specified by the user
- If the system makes a mistake, user can provide instant feedback
  - We get more training data
  - Constant improvement in accuracy

System Overview



INVOICE

číslo: **17-024-00227**

Variabilní symbol: **0231001128**
Konstantní symbol:

IČO: 18838014 DIČ: CZ6206251689
Doručovací adresa:
Ing. Jan Svatoň
Na Náhonu č.p. 146
563 01 Lanškroun
Česká republika

Dodavatel:
IČO: 00255416 DIČ:CZ00255416
Obecní úřad Dlouhá Ves
155
342 01 Dlouhá Ves

Bankovní spojení: **3328351/0100**
Komerční banka, a.s.
IBAN: SWIFT:

Příjemce:
Ing. Jan Svatoň
Na Náhonu č.p. 146
563 01 Lanškroun
Česká republika

Datum splatnosti: **31.12.2017**
Datum vystavení dokladu: 19.12.2017
Datum uskut. zdaň. plnění 18.12.2017
Specifický symbol:
Číslo zákaznického účtu:
Evidenční číslo OM:
OM číslo:
Číslo smlouvy:
Adresa OM:
kotelna Dlouhá Ves čp. 178

Název položky	množství	jednotka	Cena celkem (Kč bez DPH)
vodné	25	m3	413,00 Kč

Vyúčtování za období: od **1.1.2017** do **18.12.2017**

Celkem bez DPH	413,00 Kč
Celkem s DPH	474,95 Kč
Zahrnuté zálohy	0,00 Kč
Zaokrouhlení	0,05 Kč

K úhradě **475,00 Kč**

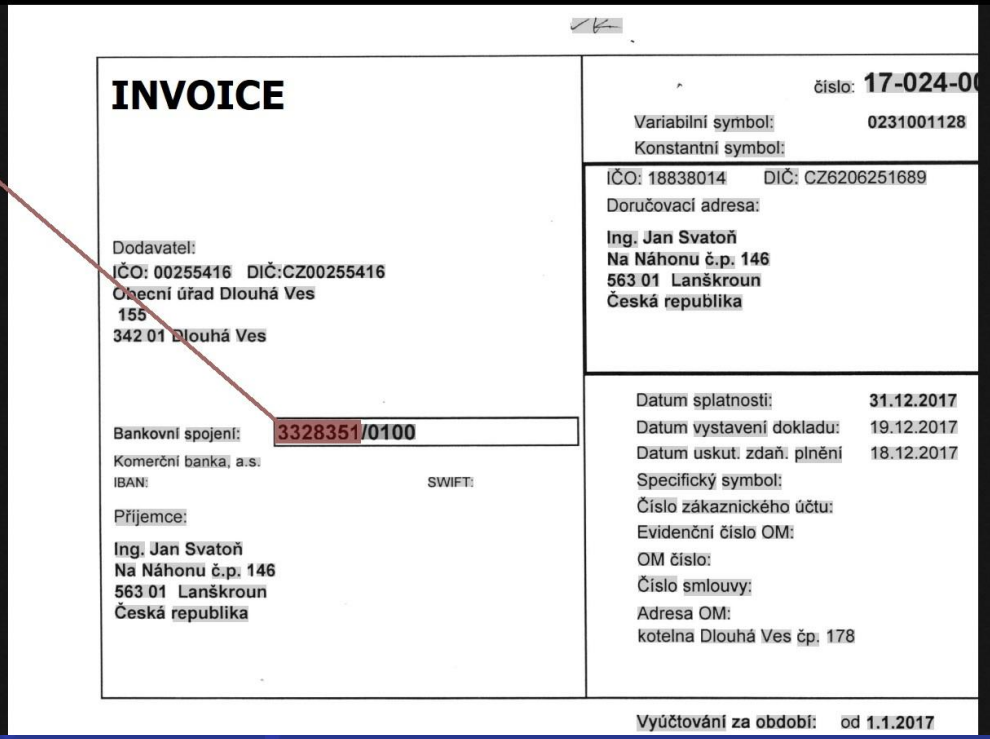
https://cloud.redque.cz/rq-sm/Validation?hash=2FCBAEDF63DC08DB0EE99EA064D077069F2FB881

redque

DlouhaVesDoklady2017Vyrobni06.pdf

Inserted 22. 5. 2019 13:29

* Invoice number	17-024-00227
Account number	3328351
Bank code	0100
IBAN	
BIC	
Variable symbol	0231001128
Constant symbol	
Specific Symbol	
* Issued by ID	00255416
Issued by VAT ID	CZ00255416
Issued by name	Obecní úřad Dlouhá Ves



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Lessons Learned

- A lot of training data is required to reach good accuracy
  - 1,000s to 10,000s of training documents required to reach >95% accuracy
  - Might be challenging to manually create such volume of training documents

Lessons Learned

- Looking at a specific document, two users might have two completely different answers which field it is (e.g. PO / Invoice #)
  - Generates lot of noise in the training data
  - We created “rule book” for users to address these ambiguities so they create consistent training data

Lessons Learned

- Users do not expect AI to have perfect accuracy, but once they give feedback they expect AI won't make the same mistake again
  - Infrastructure challenge as this would mean re-training the AI model on the spot to be ready instantly for the next processed document

Questions?

Come visit us at the AI booth

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