

A Corporate Brain for Contact Centers

Knowledge first design for intelligent call centers, and beyond

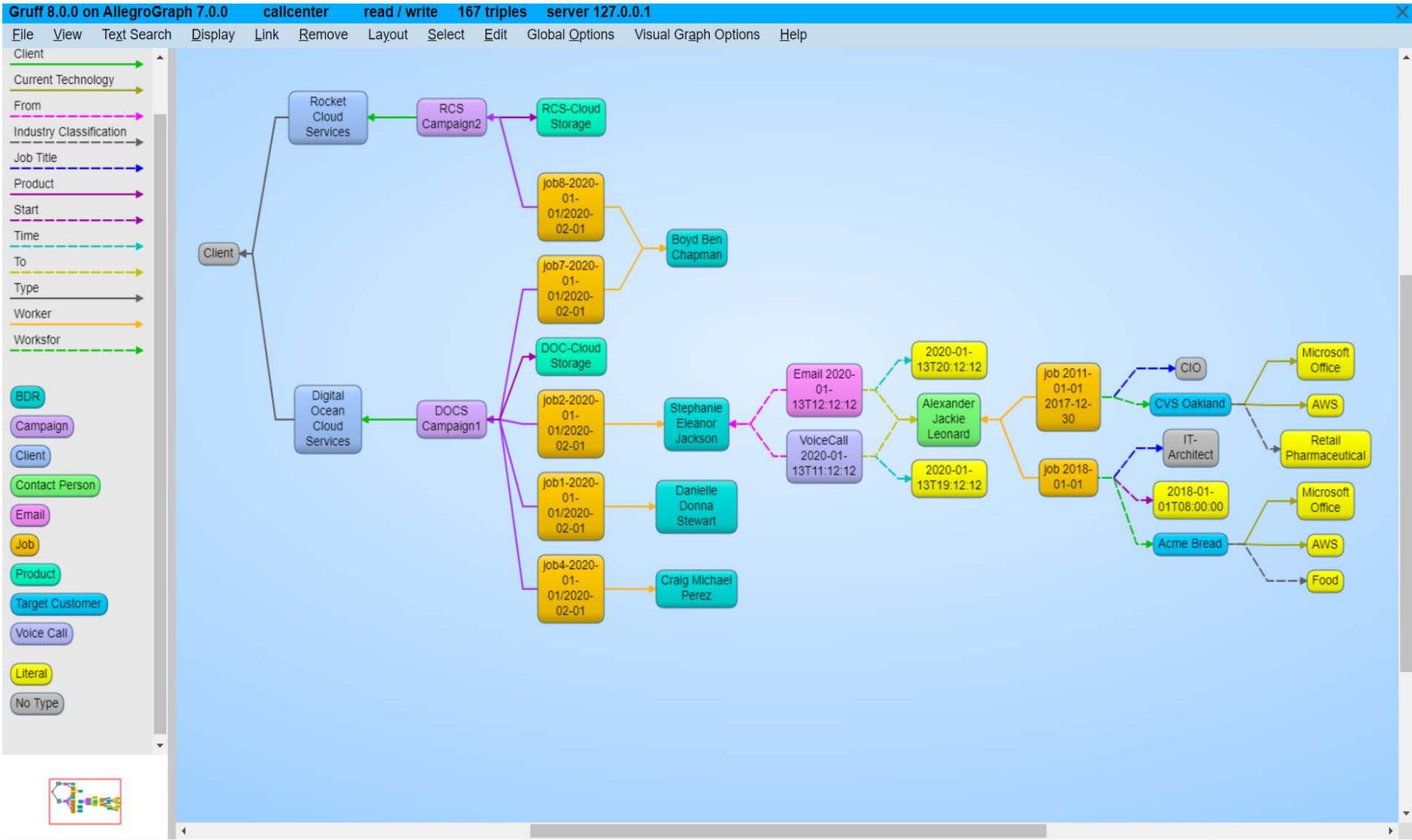
Dr. Jans Aasman
(allegrograph.com)



How does a contact center work?

- **Contact Centers** have **Clients** that need help selling something
- A client provides a **Lead List** to a Contact Center to work a **Campaign**
- A **Campaign** is time limited period to sell product or services, check on licenses, set an appointment, etc.
- Lead is a **contact name** + telephone number or email.
 - And in increasing levels of joy: company name, industry, technology stack, etc.
- A **Business Development Representative (BDR)** from the Contact Center will interact with contact person and hopefully reach the goal of the campaign
 - Quality the lead for BANT (budget, authority, need, timeline) and return it to client
 - Actually sell a product or service
 - Set an appointment
 - Modify the license agreement
 - etc

We built a corporate brain for contact centers



We made it 100 time more valuable by adding magic: insights from spoken conversations

Gruff 8.0.0 on AllegroGraph 7.0.0 callcenter read / write 167 triples server 127.0.0.1

File View Text Search Display Link Remove Layout Select Edit Global Options Visual Graph Options Help

Client
Current Technology
From
Industry Classification
Job Title
Product
Start
Time
To
Type
Worker
Worksfor

BDR
Campaign
Client
Contact Person
Email
Job
Product
Target Customer
Voice Call
Literal
No Type

The graph displays a network of entities and their relationships. Key nodes include:

- Client** (grey)
- Rocket Cloud Services** (blue)
- Digital Ocean Cloud Services** (blue)
- RCS Campaign2** (purple)
- DOCS Campaign1** (purple)
- RCS-Cloud Storage** (green)
- DOC-Cloud Storage** (green)
- job8-2020-01-01/2020-02-01** (yellow)
- job7-2020-01-01/2020-02-01** (yellow)
- job2-2020-01-01/2020-02-01** (yellow)
- job1-2020-01-01/2020-02-01** (yellow)
- job4-2020-01-01/2020-02-01** (yellow)
- Boyd Ben Chapman** (blue)
- Stephanie Eleanor Jackson** (blue)
- Danielle Donna Stewart** (blue)
- Craig Michael Perez** (blue)
- Email 2020-01-13T12:12:12** (pink)
- VoiceCall 2020-01-13T11:12:12** (purple)
- 2020-01-13T20:12:12** (yellow)
- Alexander Jackie Leonard** (green)
- 2020-01-13T19:12:12** (yellow)
- job 2011-01-01 2017-12-30** (yellow)
- job 2018-01-01** (yellow)
- CIO** (grey)
- CVS Oakland** (blue)
- IT-Architect** (grey)
- 2018-01-01T08:00:00** (yellow)
- Acme Bread** (blue)
- Microsoft Office** (yellow)
- AWS** (yellow)
- Retail Pharmaceutical** (yellow)
- Food** (yellow)

A white arrow points from a small image of a magician to the **VoiceCall 2020-01-13T11:12:12** node.

15+ Insights and growing

- Spoken (diarized) conversations in 20 different languages
 - Speech recognizers trained using [taxonomies](#)
 - Normalize and filter conversations
 - Entity extracted using these same taxonomies
 - Insights generated from entities, patterns, rules, and using ML
- Straight forward insights: BANT
- Complex insights: objections, common questions, TCR



What can we offer our clients?

We have the 1000 questions project

- HOW MANY DIALS ARE REQUIRED TO REACH MIDSIZE COMPANIES IN SPAIN?
- WHAT IS THE AVERAGE LENGTH OF PHONE CALLS INTO INDONESIA?
- WHAT INDUSTRIES ARE MOST INTERESTED IN MICROSOFTS CLOUD PRODUCTS IN KOREA LAST MONTH?
- WHAT SIZE AND INDUSTRIES ARE MOST INTERESTED IN POWER BI IMPLEMENTATION SERVICES IN THE UK?
- WHERE IS THERE MOMENTUM AROUND POWER BI?
- WHAT ARE THE MOST COMMON OBJECTIONS MENTIONED AGAINST POWER BI?
- WHAT COMPETITIVE PRODUCTS WRT POWER BI ARE MOST MENTIONED IN THE USA
- WHAT TYPES OF EXECUTIVE TITLES (CIO, CHIEF INNOVATION OFFICER, IT DIRECTOR) WHERE MOST INTERESTED IN POWER BI LAST MONTH IN SPAIN?
- WHAT CAMPAIGN MANAGERS ARE DOING THE BEST GLOBALLY ON MICROSOFTS DELIVERY GOALS?
- WHICH BDRS EXCEL ON A SPECIFIC CAMPAIGN/INDUSTRY/GEOGRAPHY?
- HOW DO WE ACCESS & NORMALIZE LIST QUALITY, SO WE CAN COMPARE CAMPAIGN PERFORMANCE, RANK TEAMS, BDRs?

The Contact Center can use the Corporate Brain to learn about their BDRs

- Learn about BDR performance as a function of
 - Experience
 - Industry & Technology
 - Type of campaign
- Learn what type of talk tracks work better
- Model the most successful BDRs
 - In conversational style, objection handling, strategic approach

How the CC can make their agents better and make their life easier

- Create better 'talk tracks'
- Shorten the prep time before agents calls a contact person
 - What industry is the customer in, what are common use cases for this industry, did we talk to this customer before, what is their current techstack.
- Provide real time decision support
 - Objection handling, product recommendation, use case material

problems that needed solving

Disambiguation at scale.

- Person names and company names come in multiple (mis)spellings.
- Millions of contact names assigned to millions of companies.
- An N^2 problem

Anonymization at scale. For certain cross client analytics we needed a fully anonymized KG

- Relatively straight forward after disambiguation
- Hard if we also need to anonymize the conversations

problems that needed solving

- GDPR
 - Huge fines when contact persons are NOT forgotten.
 - Solution: our **entity event** model makes it straightforward to delete or anonymize a contact because everything is in one logical/physical place.
- Contractual issues with sharing of leads
 - No client wants you to leak leads to other clients
 - BUT: what you learn in the conversation is a property of the CC
 - Needed a solution that physically separates client knowledge graphs and can federate with everything we learned over time about a company

Solution: a Multi Tenant Knowledge Graph federated with Landlord Knowledge Base



Summary

- We build a Corporate Brain for Contact and CRM centers
- Every clients gets its own Corporate Brain that can answer a wide range of business questions.
- Allows data scientists to do overall analytics for internal purposes over all Tenants.
- The MultiTenant nature protects clients from cross contamination with other clients