Beyond Your Expectations

A Trusted IT Service Provider and Strategic Partner for Global Clients

About Us

1 A Strategic IT Partner to Global Clients

BEYONDSOFT
beyond your expectations

23
23-years focus on IT outsourcing services

20
20-years offshore delivery center operation

15
15 vertical-focused solutions and services

32
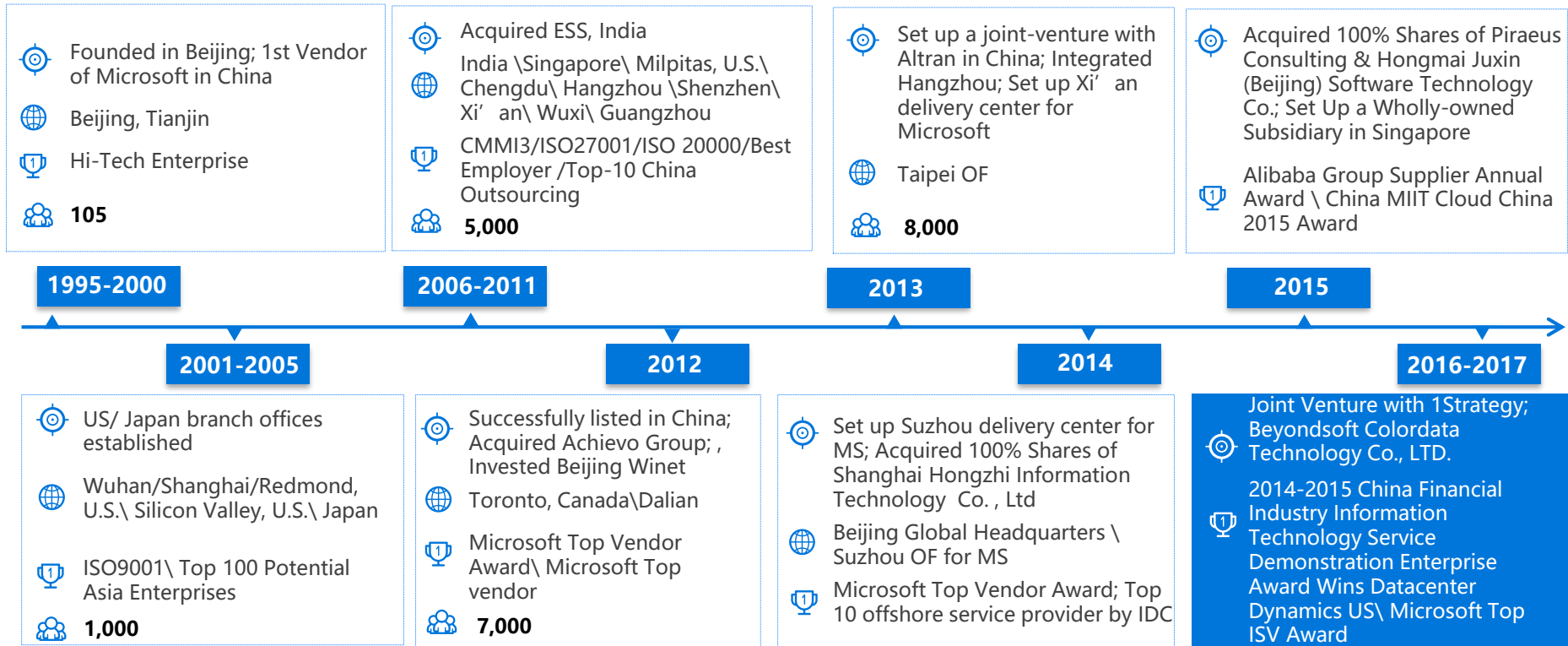32 delivery centers across multiple continents

10,000
10,000 committed and talented people globally

100%
100% committed executive team

2 Journey to Excellence

BEYONDSOFT
beyond your expectations

1995-2000
- Founded in Beijing; 1st Vendor of Microsoft in China
- Beijing, Tianjin
- Hi-Tech Enterprise
- **105**

2006-2011
- Acquired ESS, India
- India \Singapore\ Milpitas, U.S.\ Chengdu\ Hangzhou \Shenzhen\ Xi'an\ Wuxi\ Guangzhou
- CMMI3/ISO27001/ISO 20000/Best Employer /Top-10 China Outsourcing
- **5,000**

2013
- Set up a joint-venture with Altran in China; Integrated Hangzhou; Set up Xi'an delivery center for Microsoft
- Taipei OF
- **8,000**

2015
- Acquired 100% Shares of Piraeus Consulting & Hongmai Juxin (Beijing) Software Technology Co.; Set Up a Wholly-owned Subsidiary in Singapore
- Alibaba Group Supplier Annual Award \ China MIIT Cloud China 2015 Award

2001-2005
- US/ Japan branch offices established
- Wuhan/Shanghai/Redmond, U.S.\ Silicon Valley, U.S.\ Japan
- ISO9001\ Top 100 Potential Asia Enterprises
- **1,000**

2012
- Successfully listed in China; Acquired Achievo Group; , Invested Beijing Winet
- Toronto, Canada\Dalian
- Microsoft Top Vendor Award\ Microsoft Top vendor
- **7,000**

2014
- Set up Suzhou delivery center for MS; Acquired 100% Shares of Shanghai Hongzhi Information Technology Co. , Ltd
- Beijing Global Headquarters \ Suzhou OF for MS
- Microsoft Top Vendor Award; Top 10 offshore service provider by IDC

2016-2017
- Joint Venture with 1Strategy; Beyondsoft Colordata Technology Co., LTD.
- 2014-2015 China Financial Industry Information Technology Service Demonstration Enterprise Award Wins Datacenter Dynamics US\ Microsoft Top ISV Award

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BeyondLearning®

AI + OPS
Device Location
Plan Recommendation
And more...

4 Years
building ML/AI solutions

IIPR

- **8** Chinese Patents
- **1** U.S. Patent

Mature Business Model

- **Reusable** solutions
- **Standardized** process
- **Easy** integration

Solid Team

- **15+** years industry experiences
- **14** data scientists and solution experts

Global Delivery

Beijing + Seattle

1 AIOps Solutions

KPI Forecasting

Anomaly
Detection

Smart Alert
Handling

Root Cause
Analysis

NLP
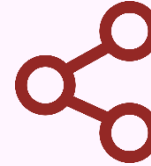
Sentiment
Analysis

AIOps Solution

Industries

SaaS

Telecom

Manufacturing

Energy

2 # Current Situation

Complexity：100+Subsystem

Huge Volume：1~4M Alerts/day
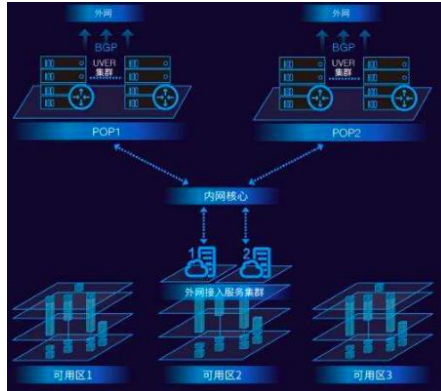
Diversity：10k+ Components

Inaccuracy：~45%

3 # Requirements

Association：In system and data level

Reduce Noises, Improve Efficiency

Deep Mining：Understand dependency among components

Improve Accuracy：>75%

Noise Reduction

Automated Alert Handling

Association Analysis

Root Cause Analysis

100% Alerts → 5% Alerts → 1% Alerts

Reduce the volume of alerts	Handle known issues automatically	Find relationship among alerts	Figure out the root causes of the problems
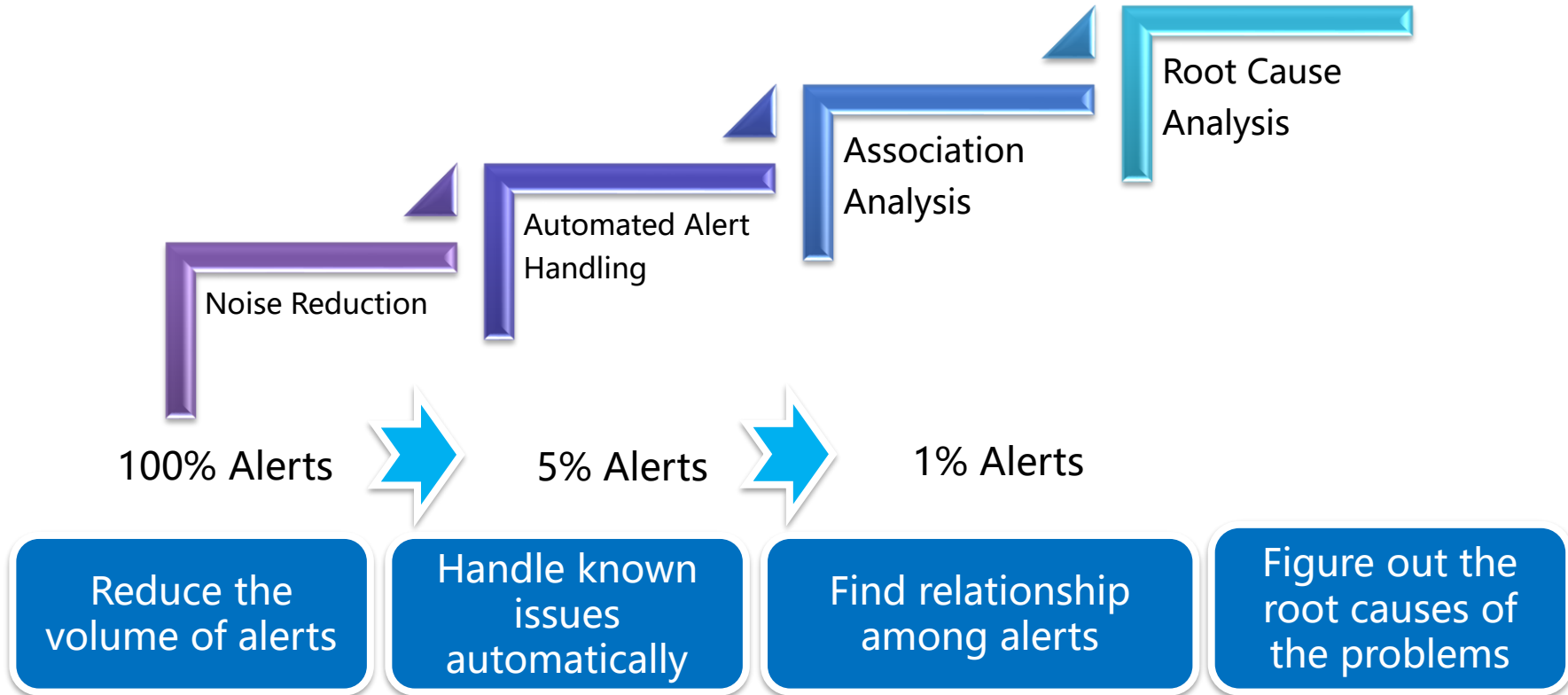
5 KPI Forecasting

Requirement:
Generate alerts when:
- Pick Bandwidth >10Gbps
- Available HD<10%

Solution:
- ML based service
- Daily KPI forecasting

Benefits:
- Accurate Planning
- Reduce CoGs
- Improve customer satisfaction level through high quality and high availability of the service

Anomaly Detection

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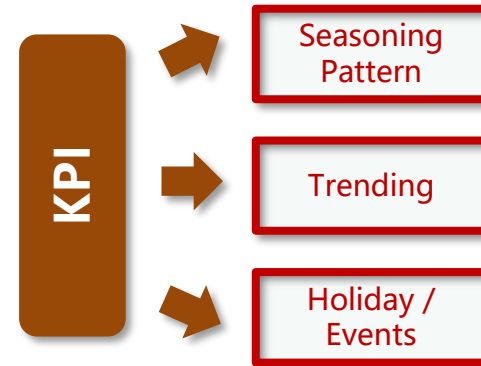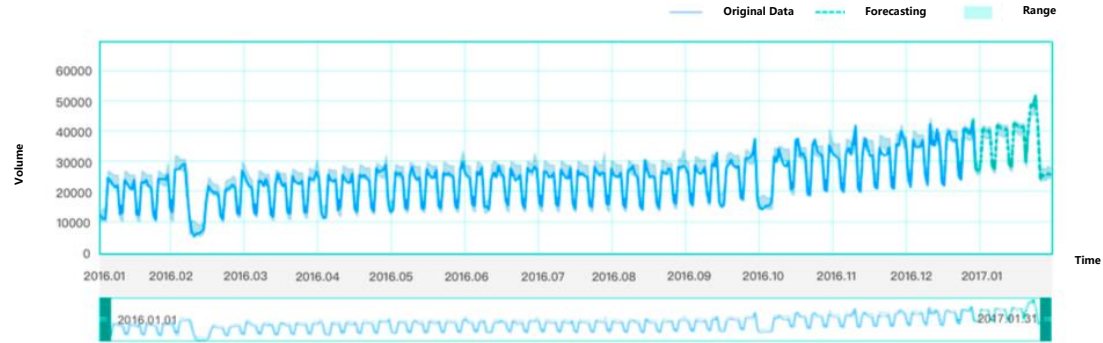
Problems of traditional system：
- Fixed threshold generates high volume of false alert
- Cannot adapt to long/short term trending

Anomaly Detection:
- Dynamic thresholds
- Self-adoptive to season and trend changes
- Optimized for special events and holidays

Benefits：
- Reduce maintenance cost of the monitoring system (DevOps Team)
- Able to detect unknow problems (DevOps Team)
- Reduce system monitoring cost(SLT)

Fixed Threshold

Dynamic Threshold
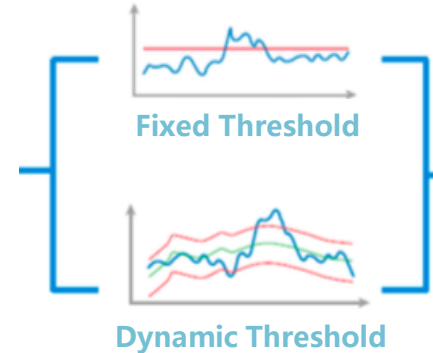
A Top Cloud Service Provider

A cloud service provider providing more than 70 services through more than 40 data centers locates around the world.

Problems:
• **70+** services, hard to identify service dependence
• **9k+** / day, Too many alerts to handle
• **80+%** repeating work, waste efforts and cost
• **Reactive** event handling, low customer satisfaction level

Solution:
• **20+** hidden relationship found, shorten RCA time
• **80+%** automation rate, reduced cost of labors
• **100%** accurate event prediction, proactively event handling to improve customer satisfaction level
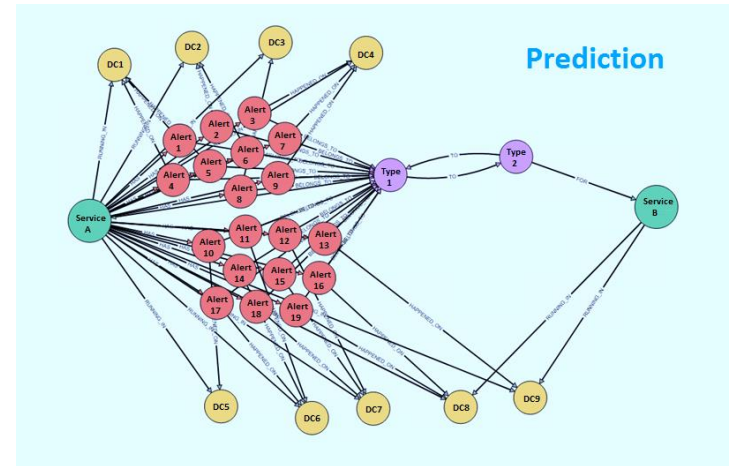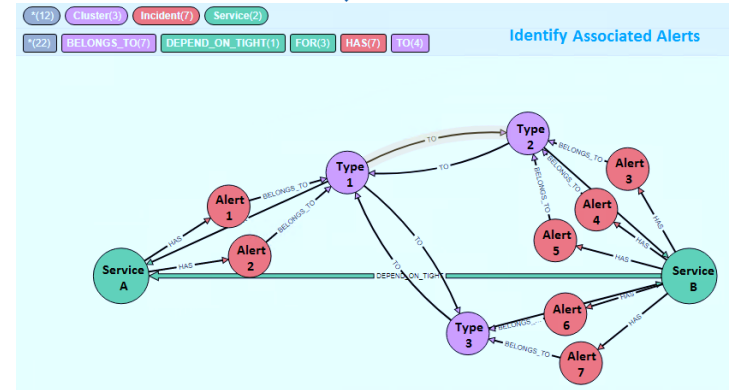
DEVICE LOCATION

2 # Current Situation

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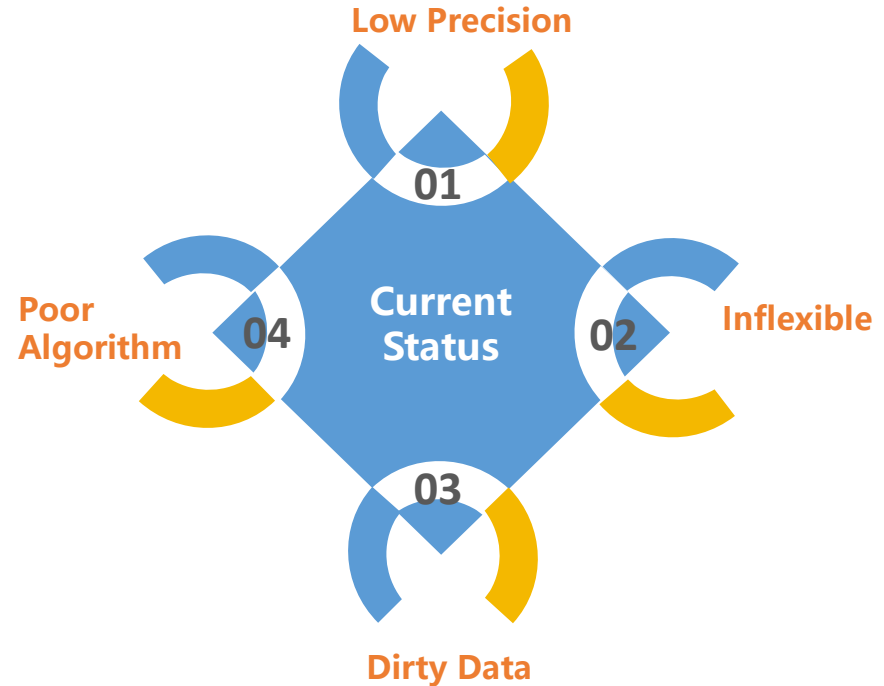beyond your expectations

Background：

A telecom service provider in China who want to use MRO data to get location distribution of the served devices for providing high quality service, however, current location solution cannot achieve the goal because:

- **Low precision:**
    - Error Range: 300M ~ 1KM (0.19ml ~ 0.62ml)
    - Error < 100M (328f): 60%
- **Low location rate:** 60% ~ 70% devices can be located

Requirements：

Need a location solution to provide:

- **High precision**:
    - Avg Error ＜ 90M (295f)
    - Error < 100M (328f): 90%
    - Error ＜ 50M (164f): 60%
- **High Location Rate:** > 90%
- **High Performance:** Process 0.26T MRO data in around 30 mins

Low Precision

01

Poor Algorithm 04 **Current Status** 02 **Inflexible**

03

Dirty Data

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MRO Based Location

Data Processing

- Data Updating
- OTT Data Analysis
- Data Filling

Feature Engineering

- Feature Selection
- Feature Generation
- Feature Evaluation

Updating FP DB

- Algorithm Selection
- Generating / Updating FP DB

Location

- High Accuracy Location
- High Performance Prediction

Fingerprint (FP) Based Location

High Precision
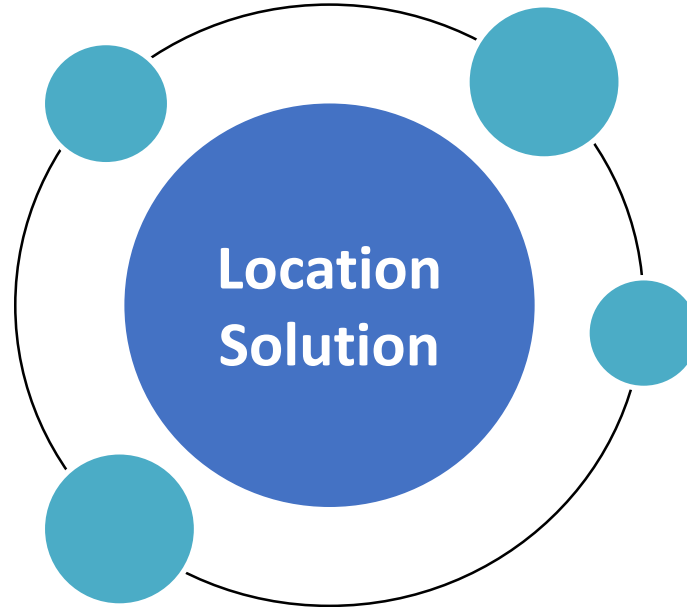
- <100M（328f）：90%+
- < 50M（164f）：60%+
- Avg Err：70M (230f)

Real Time Training

- Unsupervised Learning
- Online Training

Big Data Platform

- Hadoop based

Location Solution

High Performance

- Process 0.26T MRO data in 35 min

High Flexibility

- Fully configurable

COMMERCE SOLUTIONS

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Smart Plan Recommendation

Campaigns

Attract new customers through well organized campaigns。

Reach Customers

Through short message, business call, or toolbar, etc.

Tuning Models

Tuning models based on campaign effects

THE END

New Initiatives

Generate new initiatives based on customer requirements

Target Customers

Find right set of target customers to increase revenue, reduce cost and improve customer satisfaction
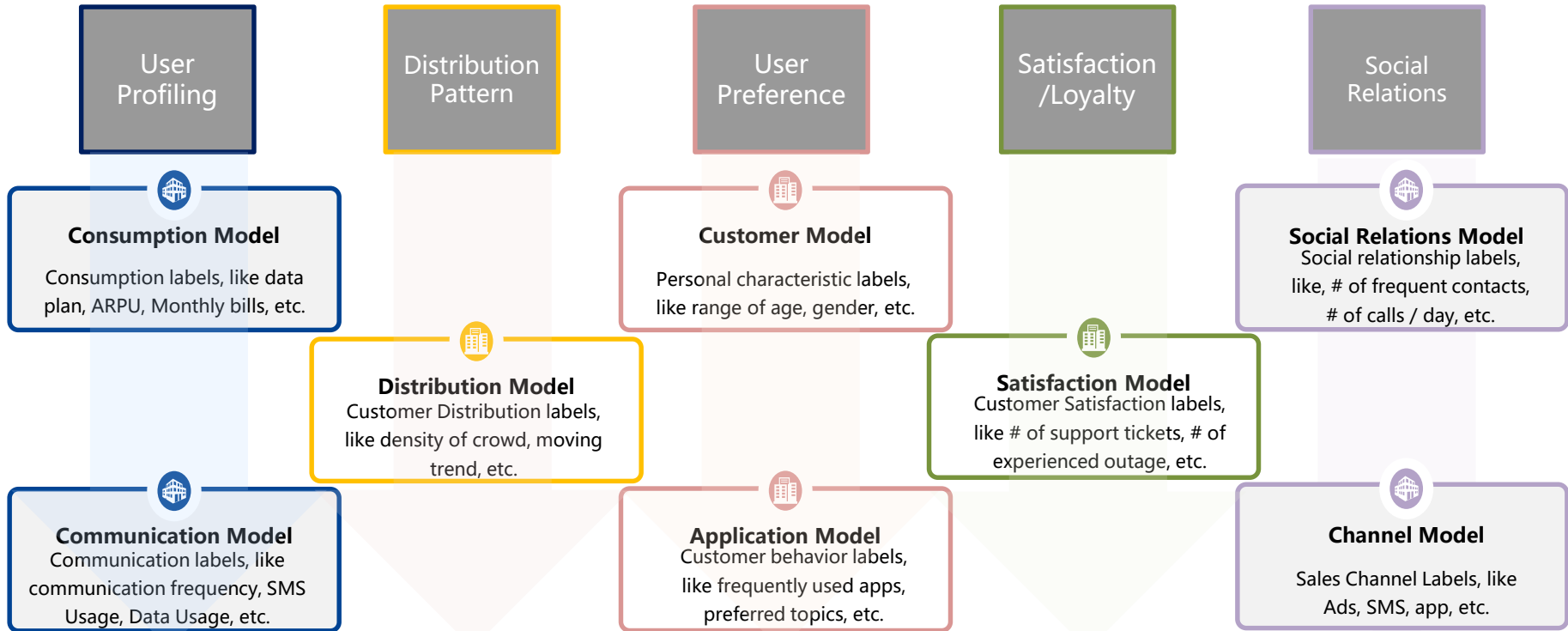
Result Analysis

Calculate Conversion Rate and CTR

Background: Data Plan Competition

User Profiling

Distribution Pattern

User Preference

Satisfaction /Loyalty

Social Relations

Consumption Model

Consumption labels, like data plan, ARPU, Monthly bills, etc.

Customer Model

Personal characteristic labels, like range of age, gender, etc.

Social Relations Model
Social relationship labels, like, # of frequent contacts, # of calls / day, etc.

Distribution Model
Customer Distribution labels, like density of crowd, moving trend, etc.

Satisfaction Model
Customer Satisfaction labels, like # of support tickets, # of experienced outage, etc.

Communication Model
Communication labels, like communication frequency, SMS Usage, Data Usage, etc.

Application Model
Customer behavior labels, like frequently used apps, preferred topics, etc.

Channel Model

Sales Channel Labels, like Ads, SMS, app, etc.

Who are the Most Valuable Passengers
-- A ML based business solution for Airlines Companies

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An Airlines Company

Problems:		Requirements:	Our Solution:	
90+%	Revenge From Add-ons Items	ML Model for Sales Promotion	**1** model	Prediction of passengers w/ Luggage Check-in
17K/day	No Common & Efficient Method	Support Intelligent Pricing	**<1** min	Prediction time for millions of predictions
Uncertainty	Target Passengers	Insights of Customer Purchasing Habits	**59%**	Coverage of the 3.5% top value passengers
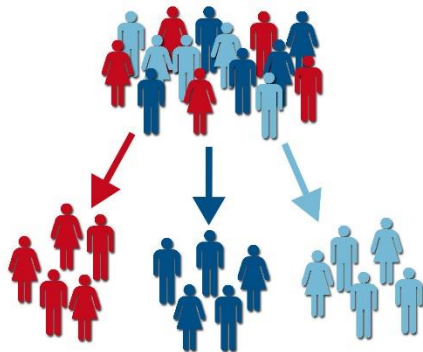
Feature	Correlation
TripTime	0.273531008
	0.236925449
	0.162521875
	0.100836908
FareCharge	0.067269519
	0.050590559
	0.045155239
	0.029164163
	0.023581151
	0.007583401
	0.006547575
	0.006169466
	0.005233857
	0.004085522
	-0.015829404
	-0.017645622
	-0.022109448
	-0.034476736
	-0.054338041
	-0.066159369

Benefits:

6 weeks	Quick Win
Marketing Opportunities	Target most valuable customers with marketing messages
Accurate models	Testing new initiatives

5 Customer Behavior Analysis
-- The solution for a cloud service provider

A Cloud Service Provider

Problems:

110+	Variety of services
20+M	High volume of users
Diversity	No common behavior pattern

Requirements:

- ML Models for service adoption/churn prediction
- Understand why
- Recommendations Actions based prediction

Our Solutions

2 folds	BI + AI
2 scales	Short/long term Activities analysis
<1 min	Prediction time (300k users)

Customers Understanding

Benefits:

Marketing Opportunities	Customers understanding
	Accurate recommendation based on prediction
Reusability	Easy to be migrated to new scenarios

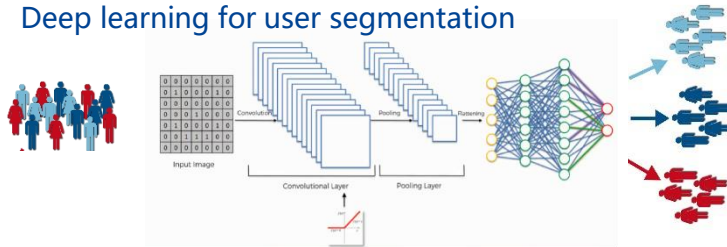# 5 Finding Target Customers
-- The solution for a cloud service provider

A Cloud Service Provider

Problems:

110+	Variety of services
20+M	High volume of users
Diversity	No common target identification pattern

Requirements:

- ML Models to identify potential customers
- Flexible for all kinds of data
- Smart Product Positioning Win the market

Our Solutions

1 model	with **deep learning** framework
<1 min	Prediction time (300k users)
70%	Coverage for the hardest cases

Deep learning for user segmentation

Benefits:

| Marketing Opportunities | Finding target customers for more efficient marketing |
| Accurate models | For accurate business decision |

Predict Customer Spending
-- The solution for a cruise ship company

A Cruise Company

Problems:

>1 hour	Heavy Workload
Department	Rough Granularity
40%	Low Accuracy

Requirements:

- Fast ML Prediction
- Fine Granularity (Passenger level)
- Better Accuracy
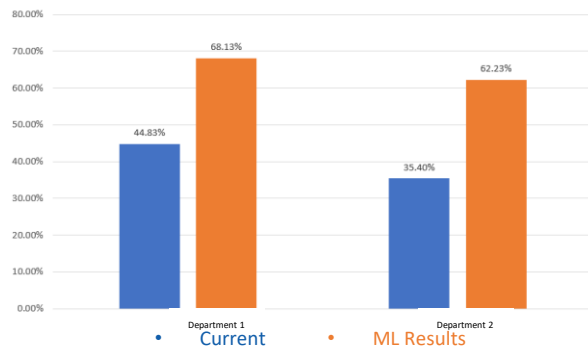
Our Solution:

<1 min	Prediction Time
27 models	Prediction for each passenger for each department
65%	Average Accuracy

Overall Prediction Precision Comparison (AP)

- Department 1: Current 44.83%, ML Results 68.13%
- Department 2: Current 35.40%, ML Results 62.23%

• Current   • ML Results

Benefits:

| Marketing Opportunities | Find target customers to help up selling new services |
| Accurate models | For accurate business decision |

OFFERING

1 Offers

Categories	Items	2-week Data Analysis	6-week PoC	Full Project
Target	Problem(s) to solve	1	1	On Demand
Data	Data Quality Evaluation	●	●	●
	Data Transformation	●	●	●
	Feature Engineering		●	●
Training	Algorithm Selection	Basic	Advanced	Advanced
	Algorithm Development	-	●	If Needed
	Model Tuning	-	●	●
	Model Performance	-	Guaranteed	Guaranteed
	Retrain/maintenanceService	-	-	●
Deployment	Cmd line scripts	●	●	●
	Docker Image	-	●	●
	Service API	-	Basic	Advanced
	ML Service	-	Stand Alone	Integrated
	System integration	-	-	●
	Model retrain	-	-	●
	Automation	-	Basic	Fully Automated
Documentation	Development plan	●	●	●
	Analysis Report	●	●	●
	Project Source Code	●	●	●
	API Documentation	-	●	●
	User Menu	-	●	●

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Thank you!

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