Centralizing Support for China Unicom’s 200M+ Subscribers

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China Unicom at a glance

- One of the three Chinese telcos alongside China Mobile and China Telecom
- With +400 millions subscribers, CU is a full range telecom service provider

- 2017 revenue of 32 billions euros with +4.6% progression

*figures by end of 2017*
Information System architecture & organization

- 4-level organization: H/Q, Provincial Branches (31), Regions & Cities (300+), Districts & Counties
- 40k+ employees, key IT systems grouped into BSS, OSS and DSS application domains

**ERP** (Accounting, HR, Supply Chain, etc) totally centralized

**Billing & CRM** Centralized for 200M+ subs over 400M+

**Big Data** Totally centralized, sized for 100+ PBytes

**OSS** Partially centralized, the network capability, BOSS and enterprise mgt packaged & exposed through open API
CU’s centralized BSS

- CU’s centralized BSS is composed of the core BSS applications as billing and CRM, connected to the 20 other central systems run by the Group IT, and to the 400+ local production systems;

- The middle office (customer, product & resource mgt) and back office functions (billing) are supported by the centralized BSS applications, while the front office is kept by the province branches;

- Deep review of technical architecture, the former RDMS clusters have been replaced by the distributed DB technologies to support multi-hundreds millions customers transactions, and the Unix-based servers have been switched to the standard X86 PC servers.
Business innovations

- Thanks to the centralized BSS and front-end systems, CU can act as the most Internet companies to offer the nation-wide innovative services through the various Internet channels;

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**2i2c business model**: Unlimited data usage tariff plans, dedicated to the specific applications access, co-branded offerings using both online & O2O channels!
Business benefits

• CU – Tencent partnership: 50 millions new 4G customers acquisition
• Mobile Internet revenue: +28.8%
• 2.4GBytes/sub data consumption, +359%
• 2018 Q1 results:
  – Revenue +8.4%, EBITDA +14.5%, Net margin +374.8%
  – Mobile subs 294M, 4G sub net increase 20M
  – ARPU 47.9RMB, +2.6%
Pursuing the digital transformation

- **Privatization**: open the CU’s capital to the leading industry and Internet companies as Tencent, Baidu, JD, Alibaba, etc for 35.2%, employees 2.7%

- Centralized BSS:
  - 2017: supporting 50% of installed base
  - 2018: 60%
  - 2019: 70%
  - 2020: 80%

- Digital services innovation: ICT, Cloud Computing, IoT, **Bigdata**
CU Bigdata evolutions

Creation of centralized data organization

- Appoint-ment of Group CDO
- Local BSS data collection

2012

- Hadoop platform construction
- Network data collection

2013

- Data driven applications: Customer profiling, digital marketing, Customer retention, ...
- Smart Steps and CM-CU JVs creation

2014

- Data monetization: Bank & insurance, City & traffic planning, Digital marketing, etc
- 52M EUR revenue

2015

- Creation of CU Bigdata company
- Government & institutions (open data, smart city), industry sectors oriented solutions

2016

- 2017
Data platform architecture

- Customer data
- Network data
- Sales & Mkt data
- Internet data
- Device data
- Partners’ data

Data Ingestion → Data Aggregation → Data Mining

Data Products

Internal apps
External apps

Bigdata Platform (Oracle, MPP, Hadoop)
Key data assets produced

- **400M Subscribers’** data, GPS level real-time location data
- 9 categories **+3000 tags** for user profiling
- **380M URL** and **60k internet apps** analyzed
- **2,000 manufacturers** and **88K models** of devices
- **380Bn Internet_eDRs**, **17Bn Location_DRs** and **15Bn cDRs** processed every day
- **100+PBytes** data storage, **2x4 nodes** Oracle RAC clusters, **120 nodes** MPP clusters and **5600 nodes** Hadoop clusters

- PSTN、铜线 → 5906万 sub.
- ADSL、光煤 → 7747万 sub.
- 2G、3G、4G → 2.90亿 sub.
Some key products

01 征信产品
Credit scoring Inquiring

02 沃指数产品
Market & Product Insights

03 精准营销产品
Digital Precision Marketing

04 用户标签产品
Customer Profile Tagging

05 能力开发平台
Open Data Service Platform

06 智慧足迹
SmartSteps
A joined product with Telefonica

Source data

- Call data
- Internet data
- CRM data
- Device data

Location & journey data

5W1H: Who When Where What Why How

- Population flow analysis
- Itinerary selection
- Origin–Destination analysis
- POI analysis
- Transportation means analysis
- Customer attributes analysis

SmartSteps transforms network data into per user location & trajectory tags
Cooperation between ChinaUnicom and the National Tourism Administration. Today, the application can support tourism analysis of 31 provinces.
CU digital marketing platform

- Unicom DM platform is open to Enterprise customers and enabling multi-functions as Customer Profiling, Customer Targeting, Customer Contact Center;
- A SaaS mode application offering highly secured access and data protection, the 3rd parties can upload their private data in this space.
An automobile manufacturer sold 3 models of cars (A1, A2, A3) by e-business. With the help of Unicom BigData marketing insight, the manufacturer can locate their potential customers and improve the market strategy.
Based on modeling abilities of Unicom BigData, we analyzed characteristics of the existing customers (A1, A2, A3) to provide customers profiling.
User searched related keywords

Users pay attention to news information on the automobile vertical platform

Users pay attention to picture information on the automobile vertical platform

Users pay attention to RV test drive on the automobile vertical platform

Users pay attention to models contrast on the automobile vertical platform

Users pay attention to Distributor information on the automobile vertical platform

Potential customers to map:

- Satisfy one or more conditions of above
- Have the purchasing power
Conclusions

• 2016-2017 was a difficult period for CU; thanks to the profound digital transformation (capital opening to the Internet leading companies, co-branded online offerings, centralized IT capabilities), the revenue by the end of 2017 was increased of 4.6%, and 2018 Q1 result +8.4%!

• The centralized IT is not only a management decision, the technical architecture should be totally reviewed and adopt the Internet-style technologies;

• During the journey of this digital transformation, China Unicom received professional support and guidance from TM Forum experts around the topics Digital Maturity Model, Frameworx, Open APIs, etc.

• China Unicom believes TM Forum is the best platform to share, innovate and collaborate and hopes to participate more and contribute more to the global industry.
Thanks