Big Mobile Data Mining
- Opportunities and Challenges

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Huawei’s Vision: Building A Better Connected World
Outline of Talk

• *Huawei and Internet of Things*
  – 5G
  – Big Data Mining

• Big Mobile Data Mining
  – MBB Data
  – Applications
  – Challenges
  – Our Solutions
Huawei Will Contribute to Internet of Things by Innovating in 5G and Big Data
5G (5th Generation Mobile Network)

- 100 million connections
- 1 millisecond ultra-low latency
- 10 Gbit/second peak speed

**Peak Speed**

- 3G: 1.4 Mb/s
- 4G: 150 Mb/s
- 5G: 10,000 Mb/s
Big Data Mining

Computers  People  Objects

Telecommunication

Value

Difficulty

Descriptive Analytics
Diagnostic Analytics
Predictive Analytics
Prescriptive Analytics
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Big Mobile Data Mining

- [http://www.wtoutiao.com/a/2058938.html](http://www.wtoutiao.com/a/2058938.html)
Mobile Broadband Data (MBB Data)

- Information about
  - Location of user
  - Internet access by user
  - Phone call by user
  - App usage by user

- Characteristics of data
  - Vast amount (every day and everywhere)
  - Naturally generated (no special equipment needed)
  - Relatively high precision
Leveraging Anonymized and Aggregated MBB Data - A Safe Way

Applications in Smart City
- Traffic Management
- Business Location Selection
- Advertising Optimization
- …..
Example Application: Outdoor Advertising Optimization
Example Application: Outdoor Advertising Optimization
Technical Challenges
- Spatial Temporal Data Mining

1. How to process vast amount of data
2. How to mine from vast amount of data
3. How to preserve privacy as much as possible
4. How to visualize mined information
Our Solutions
- Spatial Temporal Data Mining

1. Spark and Hadoop to process data
2. Data Mining Tools
3. Privacy Preserving tool
4. Visualization tool
System Architecture
- Spatial Temporal Data Mining

Data Mining Tools
Privacy Preserving Tool
Visualization Tool

Hadoop
Spark
Example Questions of Data Mining

• What is distribution of moving speeds of users?
• How many people are accessing internet?
• What is the trajectory of users closest to a given trajectory?
• What is the route most frequently used by users between two given locations?
Example Result of Data Mining
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Thank you!