TCP Performance in a Radio Access Network

Contents

- Transmission Control Protocol (TCP) Performance in a Radio Access Network
- Problem Statement
- Data Fields
- Techniques and Technologies You Will Learn

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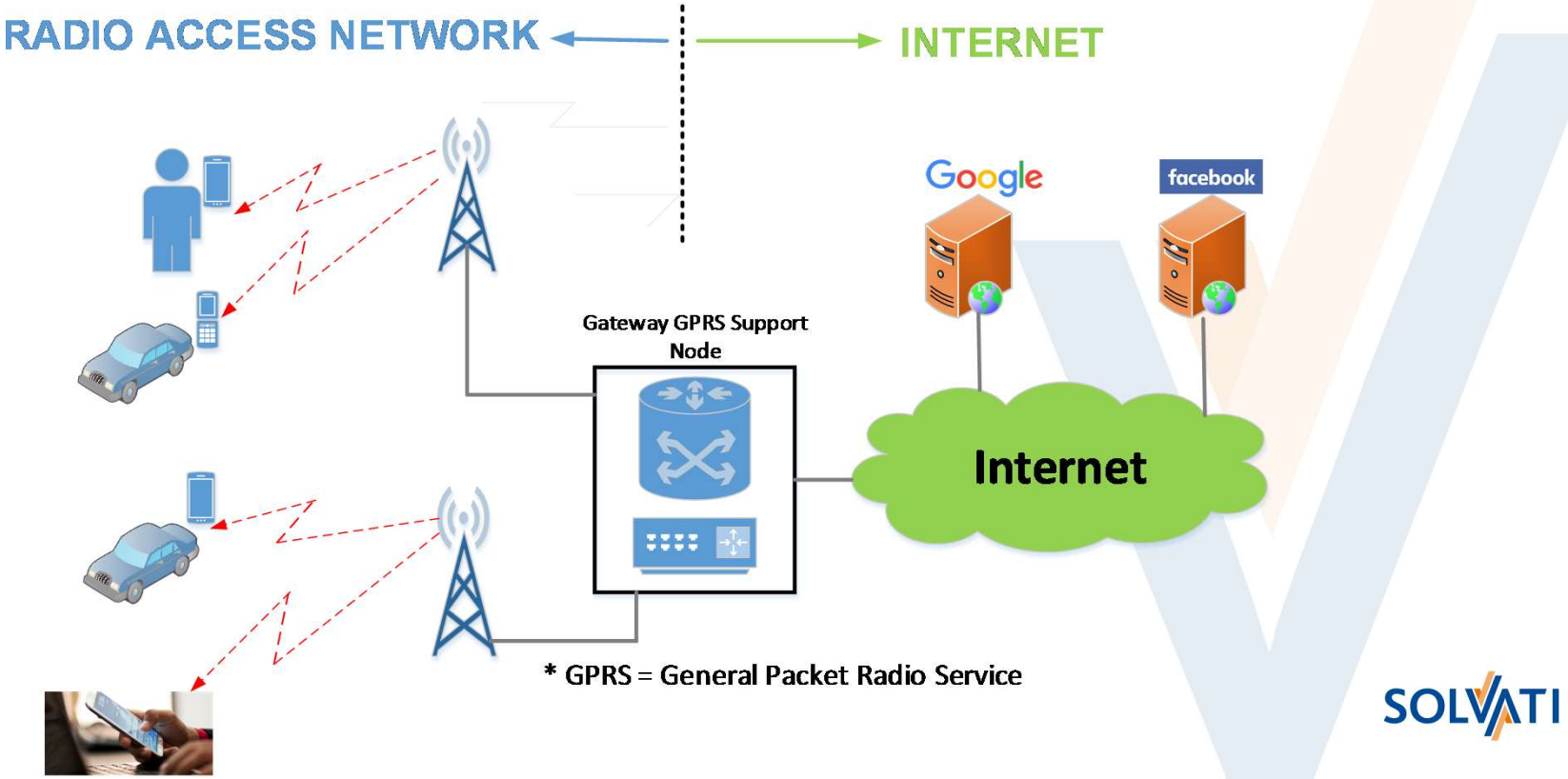
Transmission Control Protocol (TCP) Performance in a Radio Network



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Problem Statement

- You will be given a data set collected by a mobile cellular network that represents Key Performance Indicators (KPIs) reported by smartphones, base-stations and other network elements.
- Some of those KPIs describe the user experience while performing functions such as web browsing, social networking, gaming, emailing, etc. Examples of those KPIs are throughput and webpage download time.
- We need to understand the conditions that impact user experience.

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Data Fields

- **Day and time**
- **Function Performed**: web browsing, audio, email, photo sharing, social networking, gaming, …
- **User Equipment Vendor**: Apple, Samsung, Sony, Huawei, …
- **User Equipment Type**: mobile phone, tablet, dongle, …
- **Model**: iPhone 6 model A1633, iPhone 6 Plus model A1634, …
- **OS**: Android, iOS, Symbian, Windows, Blackberry, …
- **Maximum downlink speed** (as provisioned by the operator)
- **Maximum uplink speed** (as provisioned by the operator)
- **Average session throughput**
- **Webpage download time**
- **Interference**
- **Downlink transmit power**
- **Received signal strength**
- **Cell Traffic Load**
- …

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Techniques and Technologies You Will Learn

- Data cleaning: improving data quality
- Understanding the data (how to work with domain experts)
- Modeling of the problem
- How to identify most relevant features
  - Information Gain
- How to select a Machine Learning Algorithm
  - How to assess accuracy
  - How to compare different algorithms
- …

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