Real-Time Large-Scale Data Analytics and Information Retrieval in Practice

Aleksandar Bradic, Igor Bogicevic

2009

Contents

1	Introduction							
	1.1 Enter the real time	1						
	1.2 Fundamental issues	1						
2	2 The nature of large-scale data							
3	The challenges of real-time information processing 3.1 Problem description							
4	Fundamental Algorithms in Data Analytics and IR 4.1 Statistical analysis framework 4.1.1 Regression analysis 4.1.2 Forecasting 4.1.3 Parameter estimation	7 7 7 7						
5	Advanced Algorithms 5.1 Online learning algorithms	9						
6	Software toolkits for large-scale data analysis 6.1 Hadoop							
7	Large-scale IR Cookbook							
8	Moving from batch to real-time							
9	Real-world real-time applications 9.1 Web Analytics	17 17 17 17 17						
10	O Algorithms and Data Structure in support of large-scale real-time framework 10.1 Randomized Algorithms	19 19 19						
11	VoidBase: queue-based computing framework 11.1 Overview	21 21						

ii CONTENTS

Introduction

- 1.1 Enter the real time
- 1.2 Fundamental issues

The nature of large-scale data

The challenges of real-time information processing

3.1 Problem description

Fundamental Algorithms in Data Analytics and IR

- 4.1 Statistical analysis framework
- 4.1.1 Regression analysis
- 4.1.2 Forecasting
- 4.1.3 Parameter estimation

Advanced Algorithms

- 5.1 Online learning algorithms
- 5.2 Kernel Methods

Software toolkits for large-scale data analysis

- 6.1 Hadoop
- 6.2 Mahout

Large-scale IR Cookbook

Moving from batch to real-time

Real-world real-time applications

- 9.1 Web Analytics
- 9.2 Media analysis
- 9.3 Finance
- 9.4 Online collaboration

Algorithms and Data Structure in support of large-scale real-time framework

- 10.1 Randomized Algorithms
- 10.2 Queue-based structures

$20CHAPTER\ 10.$	ALGORITHMS AND	D DATA STRUCTU	RE IN SUPPORT (OF LARGE-SCALE	REAL-TIME FRAME

VoidBase: queue-based computing framework

- 11.1 Overview
- 11.2 Cookbook