

讲师介绍



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从事Java软件研发近十年。

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咪咕视讯(中国移动)项目经理、

对分布式架构、高性能编程有深入的研究。

明天，你一定会感谢今天奋力拼搏的你

Zookeeper经典应用场景

分布式系统开发技术

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课程安排



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Master选举应用

一个简单Master选举实现



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Zookeeper官网

学到很重要，会学更重要



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总结

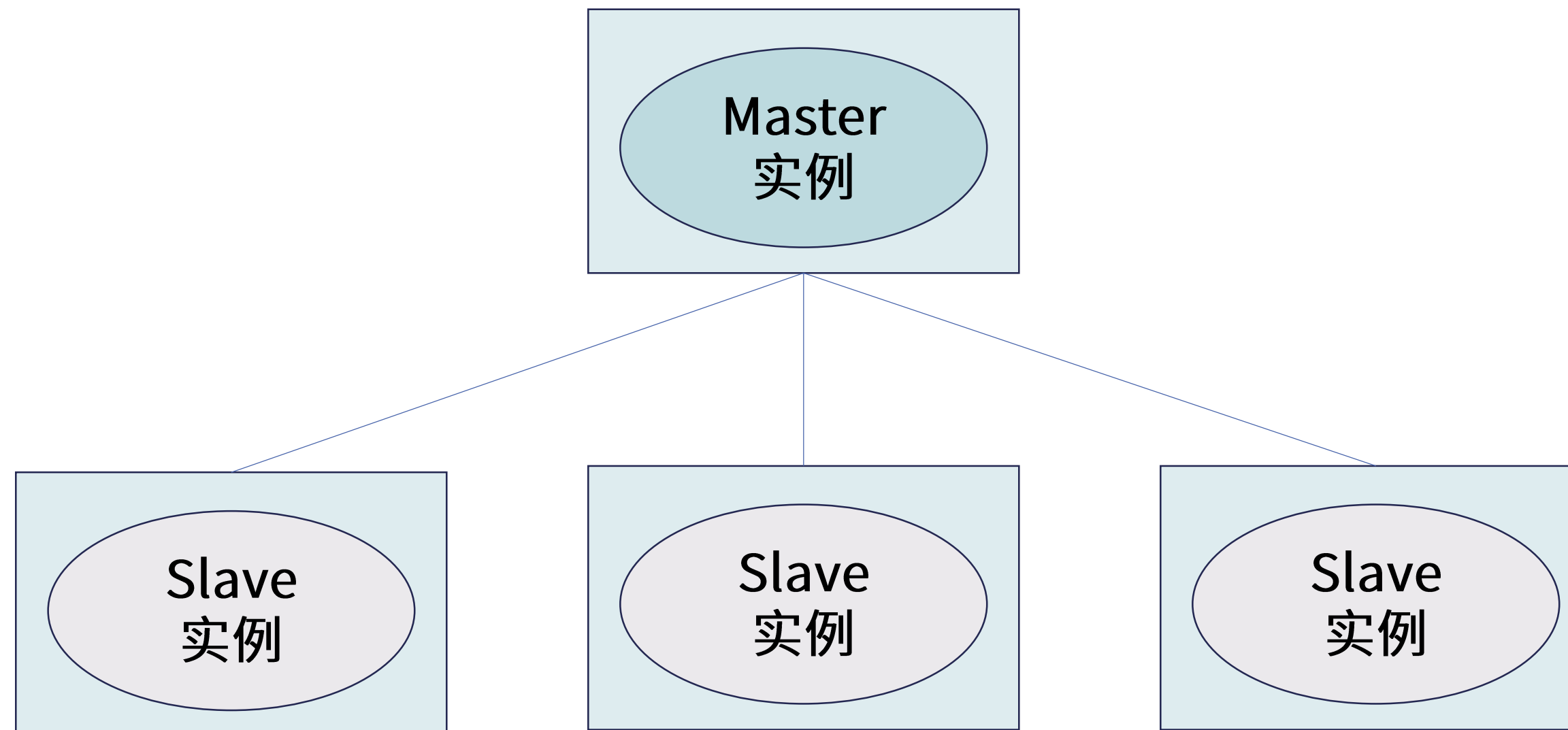
本堂课知识总结



Master选举应用

ZooKeeper实现Master选举

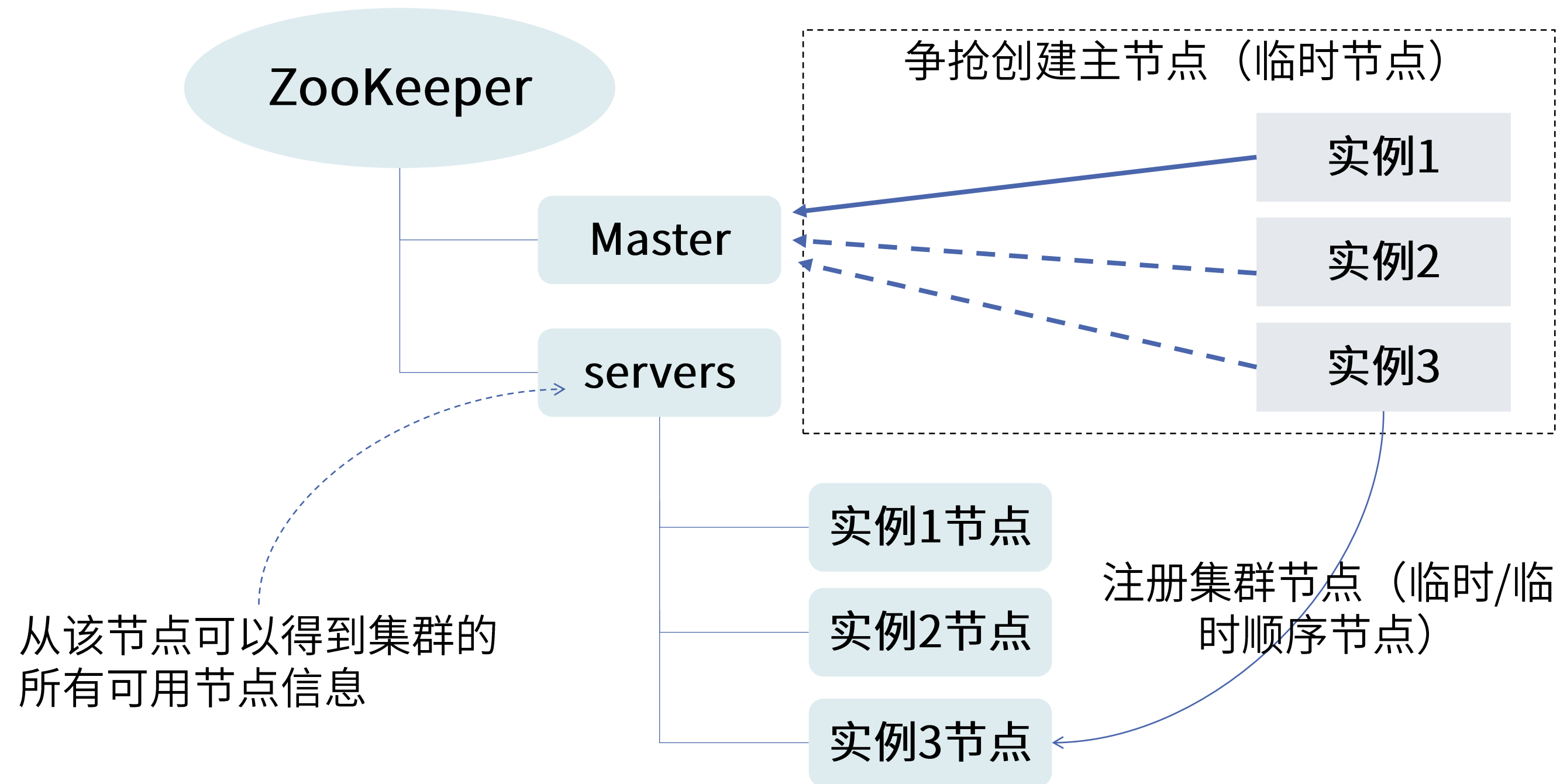
何为Master选举？



当Master节点不可用时，如何自动选举出新的Master？

ZooKeeper实现Master选举

ZooKeeper如何实现Master选举？



还可以用最小节点方式

Master选举代码实现

代码实现



Zookeeper官网

为什么要介绍Zookeeper官网?

良好的学习方法

- 我是怎么学的
- 遇到问题百度?
- 学到知识，不如会学知识

一切从官网开始

- 最权威准确，但也浅显简单
- 官网的结构
- 有哪些重要的点

Zookeeper官网的结构

怎么看zookeeper官网？

把握官网目录结构，就把握住了zookeeper的主骨架

▼ Overview

Welcome

Overview

Getting Started

Release Notes

► Developer

► BookKeeper

► Admin & Ops

► Contributor

► Miscellaneous

目录	描述
ZooKeeper Overview	Zookeeper总览：概览、开始使用、发布说明
Developers	开发者如何使用Client API：API文档、程序员开发指南、ZK Java代码示例、队列和栅栏教程、分布式下高级别通用问题解决方案
Administrators & Operators	管理员、运维人员部署内容：部署指南、配额指南、开启使用JMX、法定人数分级、观察者
Contributors	贡献代码给zk人员的文档，zk内部工作的各种主题
Miscellaneous ZooKeeper Documentation	Zk其他的各种文档，wiki、见问题解答
BookKeeper Documentation	图书管理员文档，一个高可用的具有高性能的日志预写系统，使用zk作为元数据，zk的捐献者。

开发常用部分的目录

程序员指南，zk的核心功能、客户端编程

- **Overview**
- ▼ **Developer**
 - API Docs
 - **Programmer's Guide**
 - Java Example
 - Barrier and Queue Tutorial
 - Recipes
- **BookKeeper**
- **Admin & Ops**
- **Contributor**
- **Miscellaneous**

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- [The ZooKeeper Data Model](#)
 - [ZNodes](#)
 - [Watches](#)
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 - [Sequence Nodes -- Unique Naming](#)
 - [Time in ZooKeeper](#)
 - [ZooKeeper Stat Structure](#)
- [ZooKeeper Sessions](#)
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 - [Semantics of Watches](#)
 - [What ZooKeeper Guarantees about Watches](#)
 - [Things to Remember about Watches](#)
- [ZooKeeper access control using ACLs](#)
 - [ACL Permissions](#)
 - [Builtin ACL Schemes](#)
 - [ZooKeeper C client API](#)
- [Pluggable ZooKeeper authentication](#)
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- [Bindings](#)
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 - [Installation](#)
 - [Building Your Own C Client](#)
- [Building Blocks: A Guide to ZooKeeper Operations](#)
 - [Handling Errors](#)
 - [Connecting to ZooKeeper](#)
 - [Read Operations](#)
 - [Write Operations](#)
 - [Handling Watches](#)
 - [Miscellaneous ZooKeeper Operations](#)

开发常用部分的目录

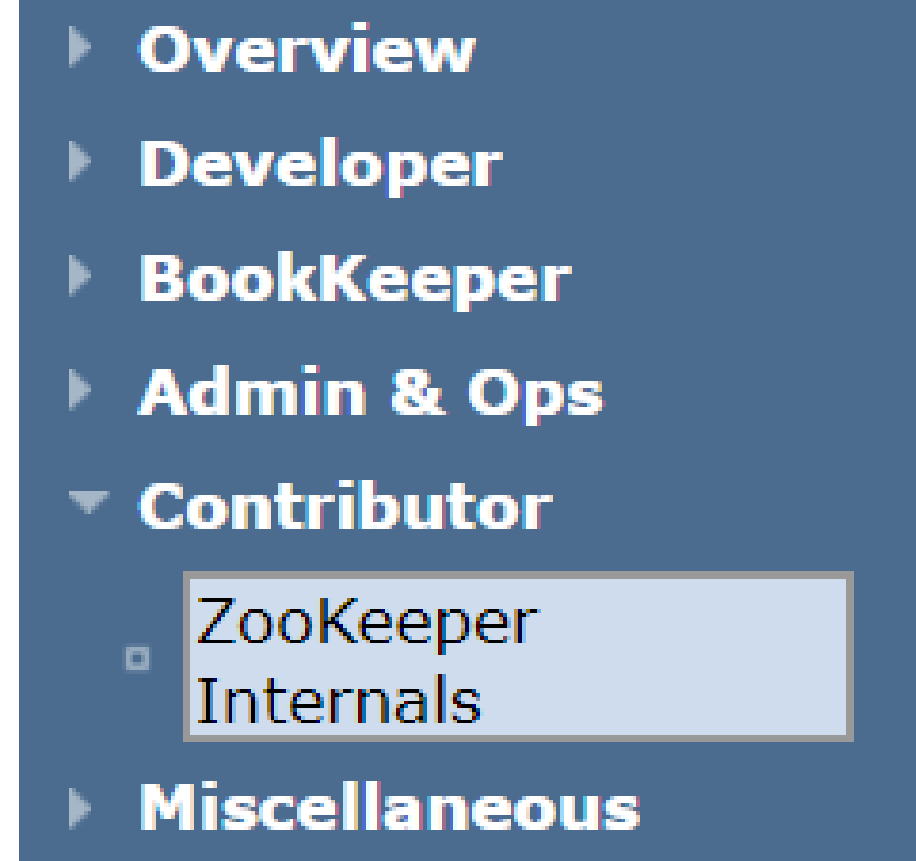
管理员指南，集群、管理员常规操作、参数配置

- ▶ Overview
- ▶ Developer
- ▶ BookKeeper
- ▼ Admin & Ops
 - Administrator's Guide
 - Quota Guide
 - JMX
 - Observers Guide
- ▶ Contributor
- ▶ Miscellaneous

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 - [Recovery - TxnLogToolkit](#)
 - [Things to Avoid](#)
 - [Best Practices](#)

开发常用部分的目录

源码贡献，zk的内部运行，zab协议、leader选举、请求流程



ZooKeeper Internals

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- ▣ [Introduction](#)
 - ▣ [Atomic Broadcast](#)
 - ▣ [Guarantees, Properties, and Definitions](#)
 - ▣ [Leader Activation](#)
 - ▣ [Active Messaging](#)
 - ▣ [Summary](#)
 - ▣ [Comparisons](#)
 - ▣ [Quorums](#)
 - ▣ [Logging](#)
 - ▣ [Developer Guidelines](#)
 - ▣ [Logging at the Right Level](#)
 - ▣ [Use of Standard slf4j Idioms](#)
-

开发常用部分的目录

Wiki, 其他语言客户端、有用的工具、性能测试报告、Zab协议深入、集群故障处理场景

- ▶ **Overview**
- ▶ **Developer**
- ▶ **BookKeeper**
- ▶ **Admin & Ops**
- ▶ **Contributor**
- ▼ **Miscellaneous**
 - Wiki
 - FAQ
 - Mailing Lists

- [Overview](#) of ZooKeeper
- [Tutorial](#): A crash course on how to implement primitives with ZooKeeper
- [FAQ](#)
- [Client bindings](#)
- [Useful Tools](#)
- [Presentations and articles](#) about ZooKeeper
- [PoweredBy](#), a list of sites and applications powered by ZooKeeper
- [ErrorHandling](#), how applications and libraries should deal with errors from ZooKeeper
- [Troubleshooting](#), specific help on troubleshooting ZooKeeper operating environments
- [Performance](#), a benchmark of the performance of the ZooKeeper 3.2 release
- [Zab](#), random notes about the ZooKeeper Atomic Broadcast protocol
- [Failure Scenarios](#), How failure scenarios are handled in ZooKeeper ensembles



Zookeeper拓展















其他语言的客户端支持

Binding	Author	URL	License
Scala	Steve Jenson, John Corwin	http://github.com/twitter/scala-zookeeper-client	AL2
C#	Eric Hauser	http://github.com/ewhauser/zookeeper	AL2
Node.js	Yuri Finkelstein	http://github.com/yfinkelstein/node-zookeeper	MIT
Twisted/Python	Kapil Thangavelu	http://launchpad.net/txzookeeper	LGPLv3
Python (no C dependency)	Kazoo Team	https://github.com/python-zk/kazoo	AL2
Python	Jim Fulton	http://pypi.python.org/pypi/zc.zk	ZPL2.1
Erlang	Marco Grebe	http://github.com/infinipool/ezk	AL2
Haskell	Sergiy Matuskevych	http://github.com/motus/haskell-zookeeper-client	AL2
Ruby	Jonathan Simms	https://github.com/slyphon/zk	MIT
Go	Canonical	https://wiki.ubuntu.com/gozk	LGPLv?
Java	Curator Team	http://curator.incubator.apache.org	AL2
Pure Python with no dependencies	Alan Cabrera	https://github.com/maguro/pookeeper	AL2
Lua	Fu Haiping	https://github.com/forhappy/zklua	AL2

<https://cwiki.apache.org/confluence/display/ZOOKEEPER/ZKClientBindings>

一些有用的工具

KeptCollections

- ▼  KeptCollections-1.0.0.jar - F:\.m2\repository
 - ▼  net.killa
 - ▼  kept
 - >  KeptBlockingQueue.class
 - >  KeptCollection.class
 - >  KeptConcurrentMap.class
 - >  KeptList.class
 - >  KeptLock.class
 - >  KeptMap.class
 - >  KeptQueue.class
 - >  KeptSet.class
 - >  Synchronizable.class
 - >  SynchronizingWatcher.class
 - >  Transformer.class

KeptCollections是一个替换了数据结构的，Java Collections框架库。

由于KeptCollections使用zk作为数据存储，使得数据结构是分布式的可升级的。

里面的功能不多也不难，但是适合我们去学习zk在里面用法及扩展方式，带给我们不一样的思路。

<https://github.com/anthonyu/KeptCollections>



一些有用的工具



GroupID/Org	ArtifactID/Name	Description
org.apache.curator	curator-recipes	All of the recipes. Note: this artifact has dependencies on client and framework and, so, Maven (or whatever tool you're using) should pull those in automatically.
org.apache.curator	curator-async	Asynchronous DSL with O/R modeling, migrations and many other features.
org.apache.curator	curator-framework	The Curator Framework high level API. This is built on top of the client and should pull it in automatically.
org.apache.curator	curator-client	The Curator Client - replacement for the ZooKeeper class in the ZK distribution.
org.apache.curator	curator-test	Contains the TestingServer, the TestingCluster and a few other tools useful for testing.
org.apache.curator	curator-examples	Example usages of various Curator features.
org.apache.curator	curator-x-discovery	A Service Discovery implementation built on the Curator Framework.
org.apache.curator	curator-x-discovery-server	A RESTful server that can be used with Curator Discovery.

GitHub: <https://github.com/apache/curator>

Apache: <http://curator.apache.org/>



总结

知识总结

Master选举

临时节点、争抢Master节点

学会看官网

官网的重要性、官网目录结构、开发人员常用页面

ZK拓展

其他语言客户端的支持、keptCollections、curator

谢谢观看