



华为云分布式事务DTM最佳实践.

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Grow with Intelligence



servicecomb.apache.org
github.com/apache?q=servicecomb
www.huaweicloud.com



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问题起源





业界常用的一致性分类

弱一致性 Weak
最终一致性 Eventually
强一致性 Strong



方案对比



方案\指标	2PC 传统事务	可靠事件	TCC 柔性事务	SAGA 补偿事务
数据一致性	强一致	最终一致	最终一致	最终一致
总体性能	低	高	取决于实现	取决于实现
业务侵入性	较低侵入	高侵入	高侵入	高侵入
适用广泛性	一般	一般	高	低
产品成熟度	高	高	一般	低



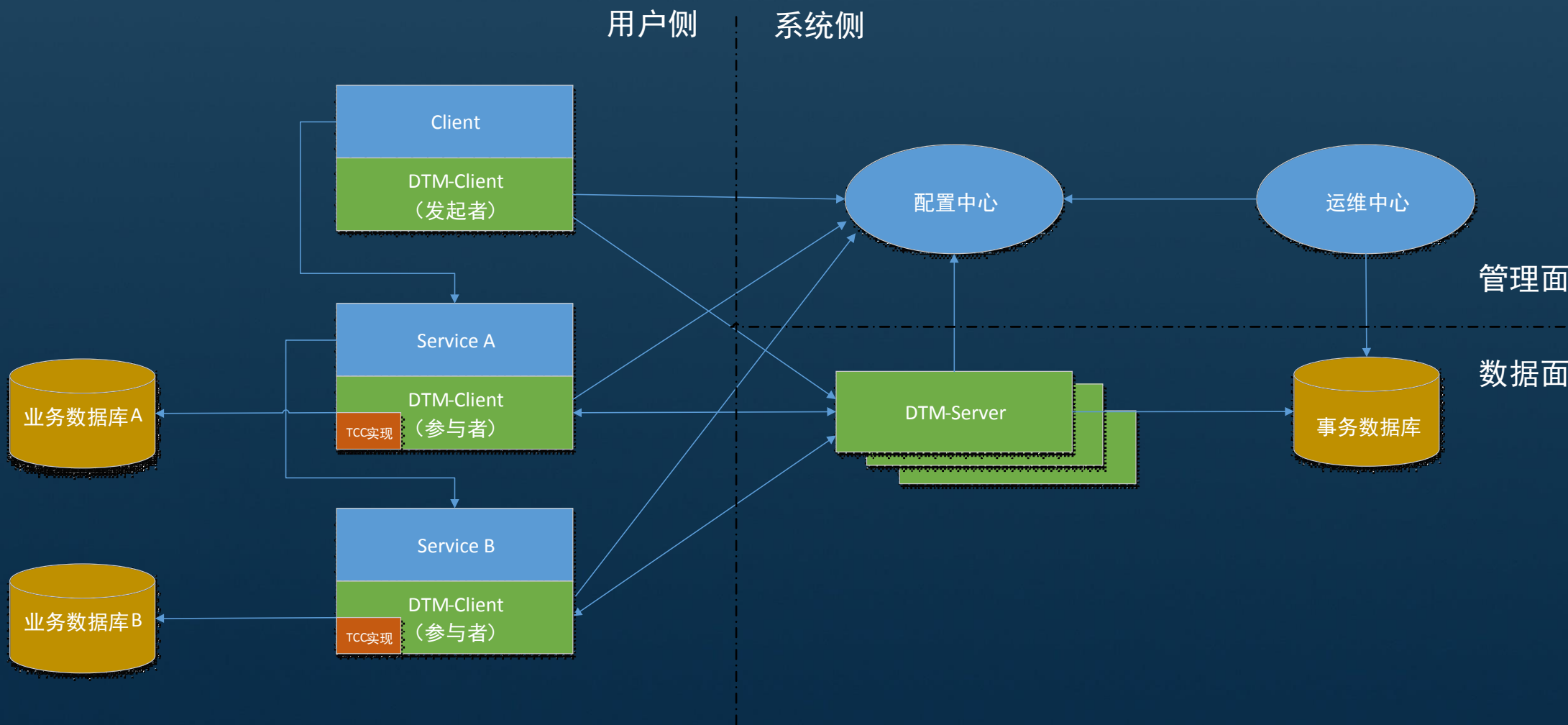


分布式事务管理中间件 (Distributed Transaction Management , DTM)

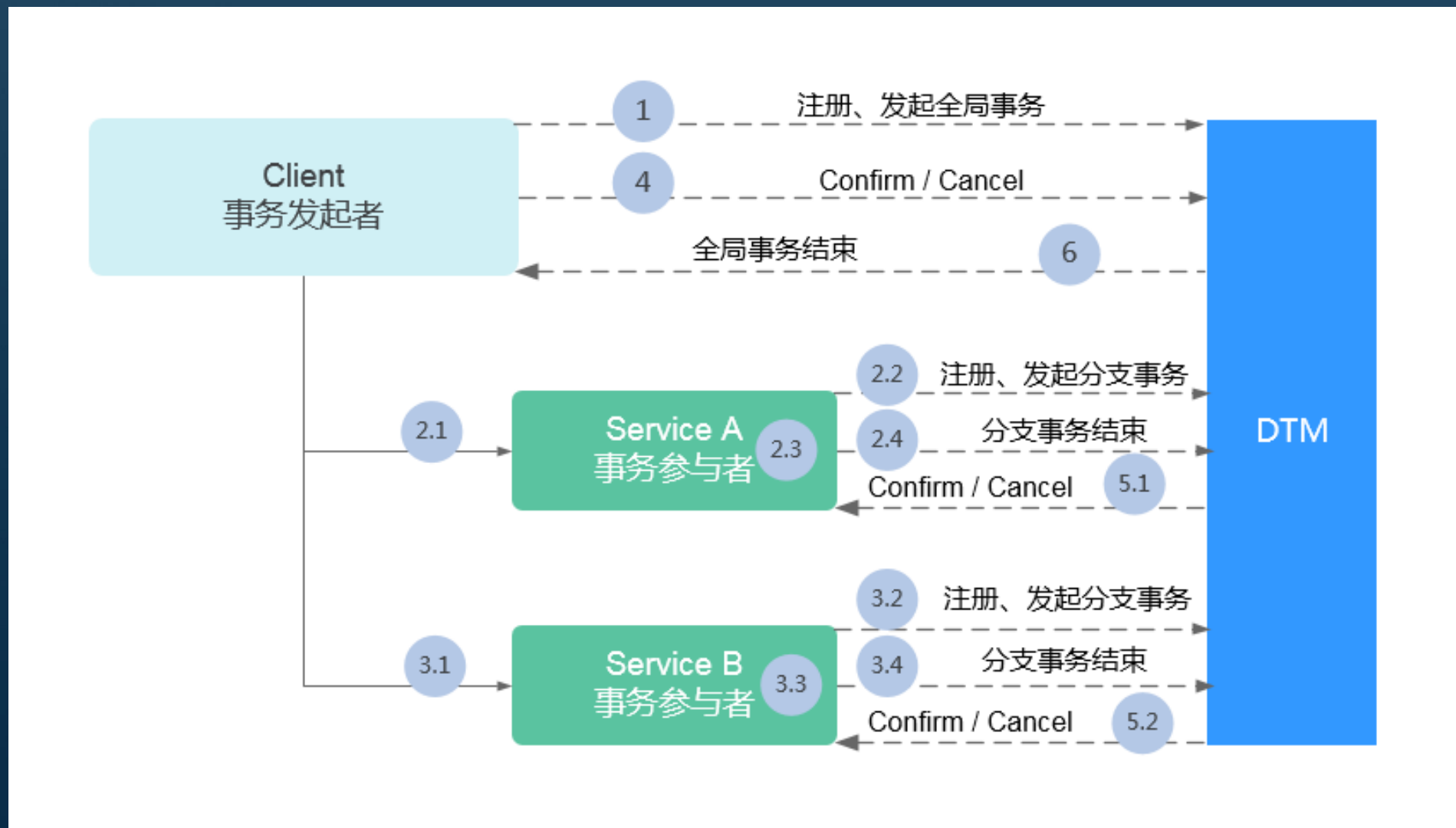


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DTM总体架构 (TCC)



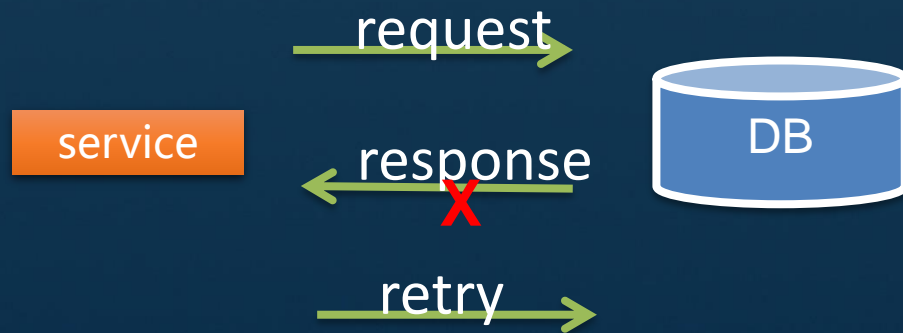
一个完整的步骤



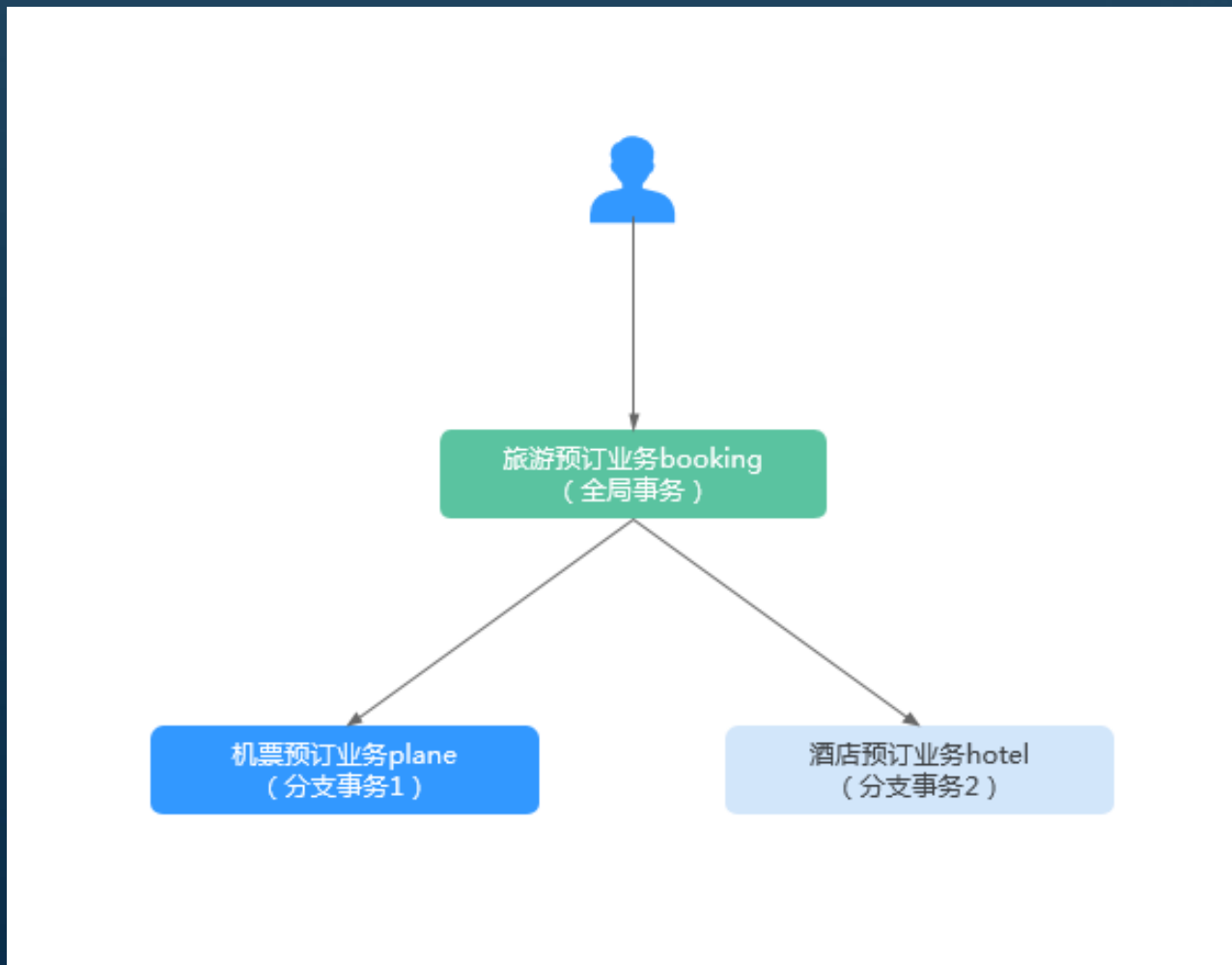


使用限制及要求

- 接入DTM的应用程序TCC方法应保证幂等性。
- 接入DTM的应用程序TCC方法应保证原子性。



Demo



Demo—主干



```
@DTMTxBegin(appName = "booking")
@Path(value = "/book")
public void book() throws InterruptedException {
    System.out.println(new SimpleDateFormat("yyyy-MM-dd hh:mm:ss").format(new Date())
        + "-"
        + DTMContext.getDTMContext().getGlobalTxId()
        + "-"
        + "start booking...");
    planeService.bookTicket();
    TimeUnit.SECONDS.sleep(10);
    hotelService.bookRoom();
    System.out.println(new SimpleDateFormat("yyyy-MM-dd hh:mm:ss").format(new Date())
        + "-"
        + DTMContext.getDTMContext().getGlobalTxId()
        + "-"
        + "booking succeeded!");
}
```



Demo—分支



```
@RequestMapping(value = "/bookTicket", method = RequestMethod.GET)
@DTMTccBranch(identifier = "plane", confirmMethod = "confirm", cancelMethod = "cancel")
public void bookTicket() throws InterruptedException {
    TimeUnit.SECONDS.sleep(5);
    System.out.println("book plane ticket");
}
```

```
public void confirm() {
    System.out.println(new SimpleDateFormat("yyyy-MM-dd hh:mm:ss").format(new Date())
        + "-"
        + DTMContext.getDTMContext().getGlobalTxId()
        + "-"
        + DTMContext.getDTMContext().getBranchTxId()
        + "confirm hotel");
}
```

```
public void cancel() {
    System.out.println(new SimpleDateFormat("yyyy-MM-dd hh:mm:ss").fo
```

性能



性能规格	节点类型	虚拟机数目	CPU/RAM	存储
2000TPS	Server	3	<ul style="list-style-type: none">● CPU≥4核;● RAM≥8GB;	<ul style="list-style-type: none">● 系统盘: 40GB;● 数据盘: 500GB;
	GaussDB	2	<ul style="list-style-type: none">● CPU≥8核;● RAM≥16GB;	<ul style="list-style-type: none">● 系统盘: 40GB;● 数据盘(SSD): 1TB;
5000TPS	Server	3	<ul style="list-style-type: none">● CPU≥8核;● RAM≥16GB;	<ul style="list-style-type: none">● 系统盘: 40GB;● 数据盘: 500GB;
	GaussDB	2	<ul style="list-style-type: none">● CPU≥8核;● RAM≥16GB;	<ul style="list-style-type: none">● 系统盘: 40GB;● 数据盘(SSD): 1TB;
10000TPS	Server	5	<ul style="list-style-type: none">● CPU≥8核;● RAM≥16GB;	<ul style="list-style-type: none">● 系统盘: 40GB;● 数据盘: 500GB;
	GaussDB	2	<ul style="list-style-type: none">● CPU≥8核;● RAM≥16GB;	<ul style="list-style-type: none">● 系统盘: 40GB;● 数据盘(SSD): 1TB;



总结



- 在服务拆分阶段就应该尽量避免事务
- 并不是所有地方都要求强一致性
- 强一致性也不保证绝对的一致
- 所有方案都是尽量缩小不一致的时间窗口
- 考虑成本





Thank You.

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