

10+年数据库从业者经验:那些年我们故障上丢过的钱

分享人: 薛晓刚



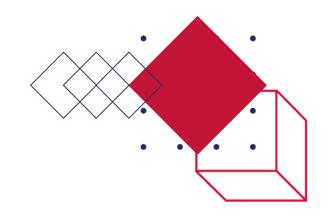




PCTA、TiDB的MVA、TiDB布道师、上海地区组织者

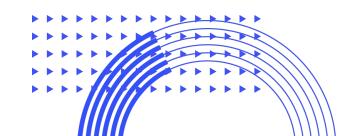






主题背景:

故障的精力应该放在哪里?





目录

- 1.灾难和故障哪个多?
- 2. 更加二八原则如何投入?
- 3. 例举真实案例中的问题。
- 4.如何解决这些问题?
- 5.如何避免这些问题?



高可用既可以容灾的也可以解决(硬件)故障。画外音....

提问:以上出现的概率有多少?

即使万分之一的概率也要做。

提问: 那万分之9999的要不要做?



调研:数据库中引发故障的主要原因有哪些?

第1题:来了解下大家在数据库中常见的引发故障的主要原因?请按常见程度进行排序(第一排序为您最常见

的故障原因) [排序题]

综合排序结果为: (综合得分如何计算?)

查看详细数据

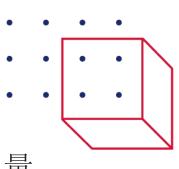
选项‡	综合得分‡	第1位	第2位	第3位	第4位	第5位	小计‡
SQL	3.84	31(62%)	11(22%)	3(6%)	2(4%)	3(6%)	50
人为误操作	3.02	10(22.22%)	20(44.44%)	10(22.22%)	4(8.89%)	1(2.22%)	45
硬件	2.43	13(37.14%)	6(17.14%)	15(42.86%)	1(2.86%)	0(0%)	35
网络	2.21	2(5.41%)	15(40.54%)	16(43.24%)	2(5.41%)	2(5.41%)	37
操作系统	1.11	0(0%)	4(18.18%)	12(54.55%)	4(18.18%)	2(9.09%)	22

★ 柱状 子条形 ~ 折线 ○ 雷达





遇到SQL产生的(性能)问题,即使高可用也未必可以解决故障。何况还有其他问题。



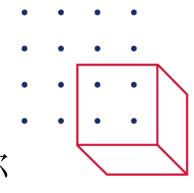
数据库是专家密集型产品、技术密集型产品、也是单量密集型产品。直接关系到公司的存活。

多数故障的问题点在于SQL。而且几乎每天都发生。而硬件、网络等基础环境未必经常发生问题。

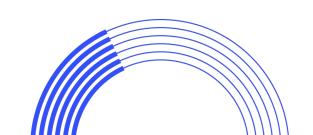
慢--> 锁

--> 以及 OOM和积压





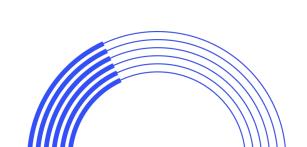
最好的备份是没有备份。(细想,你细想)



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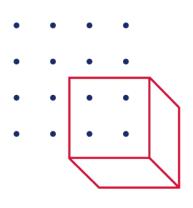
故障的源泉之一: 需求方。



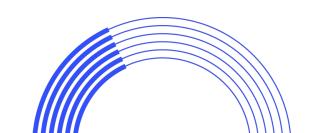




分析问题未必要懂业务。

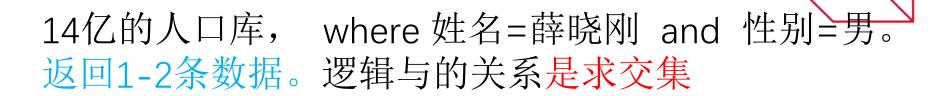


SELECT * FROM T WHERE code='123456' or status='0';

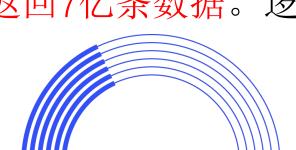




故障的源泉之一:不靠谱的需求方。



14亿的人口库, where 姓名=薛晓刚 or 性别=男。 返回7亿条数据。逻辑或的关系是求并集

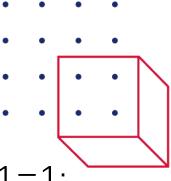


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故障的源泉之一:不靠谱的业务。

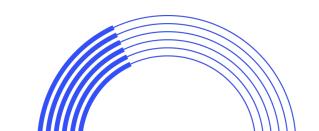


故障的源泉之二:不靠谱的SQL开发。



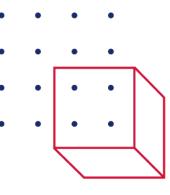
SELECT * FROM T WHERE code='123456' or 1=1;

SELECT * FROM T WHERE code='123456' or 1-1;



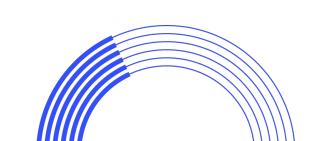


故障的源泉之三:不靠谱的需求。



SELECT * FROM X WHERE codeA='123456' or codeB='123456

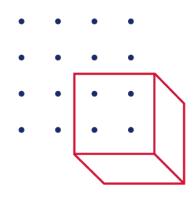
重点:凡是OR都是扩大范围的操作,一般不用于高频检索应用。



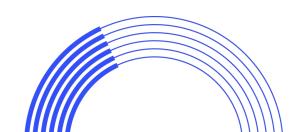


故障的源泉之三:不靠谱的需求。

	VJ_III IIII IIII IIII IIII IIII III	count(*)
١	NULL	6827849
	13634	5
	12700	1
	TOUTTO	1
	THE REAL PROPERTY.	1



最佳实践	现因无知	*	已与业务确认,	删除or 相关的	上脚本。
1					
优化建议					





故障的源泉之四: 乱需求和乱开发

SQL> SELECT * FROM A;

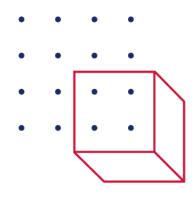
ID NAME

1 A1
2 A2

SQL> SELECT * FROM C;

3 A3

ID	AID	NAME	CODE	NUM
1	1	B1	В	1
2	1	B2	В	3
3	2	C1	C	5
4	2	C2	C	7
5	3	D1	D	9
6	3	D2	D	2
7	3	D3	D	4
8	4	E1	E	6
9	4	E2	Е	8



SQL> SELECT ID, NAME, (SELECT	SUM(NUM)	FROM	С	WHERE	A.ID=C.AID)	AS	S	FROM	Α	;
ID NAME	S									
1 A1 2 A2 3 A3	4 12 15									
SQL> SELECT ID, NAME, (SELECT	COUNT(1)	FROM	С	WHERE	A.ID=C.AID)	AS	С	FROM	Α	;
ID NAME	С									
1 A1 2 A2 3 A3	2 2 2 3									



故障的源泉之四: 乱需求和乱开发

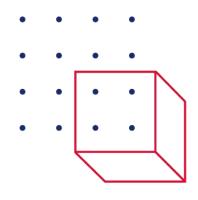
SQL> SELECT * FROM A;

ID NAME

1 A1
2 A2
3 A3

SQL> SELECT * FROM C;

ID	AID	NAME	CODE	NUM
1	1	B1	В	1
2	1	B2	В	3
3	2	C1	C	5
4	2	C2	С	7
5	3	D1	D	9
6	3	D2	D	2
7	3	D3	D	4
8	4	E1	Е	6
9	4	E2	Ε	8



SQL> SQL> SELECT A.ID, A.NAME, (SELECT CODE FROM B WHERE A.ID=B.AID AND ROWNUM=1) AS BL FROM A;

ID	NAME	BL
1	A1	В
2	A2	В
3	A3	В

SQL> SELECT A.ID, A.NAME, (SELECT MAX(CODE) FROM B WHERE A.ID=B.AID) AS BL FROM A;

ID	NAME	BL
1	A1	В
2	A2	В
3	A3	В



oh.FROM PLACE WAREHOUSE ID as "fromPlaceWarehouseld"

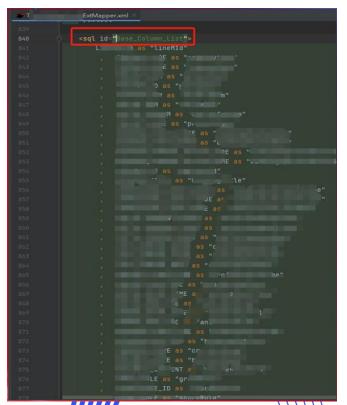
故障的源泉之四: 乱需求和乱开发

```
oh.DELIVY PLACE ADDRI as "delivvPlaceAddri"
   oh.PLAN PARTICLE as "planParticle"
   oh.PLAN CREATE TIME as "planCreateTime"
   oh.E BILL BUSINESS TYPE as "eBillBusinessType"
   oh.GC_BILL_TYPE as "gcBillType"
                                                                        ______S otI where otI.IS_DELETED='0' and otI.ORDER_ROUTE_STATUS <> '00' and otI.ORDER_HEAD_ID = oh.ORDER_HEAD_ID and otI.SEQ=1 and otI.order_route_status in ('20', '4
   (select nV)(sum(nV)(otl.issue count, 0)), 0) from T 000 T 00
   (select otl.trans_type from 1______GS otl where otl.S_DELETED='0' and otl.ORDER_ROUTE_STATUS 💠 '00' and otl.ORDER_HEAD_ID = oh.ORDER_HEAD_ID and otl.SEQ=1 and otl.Order_route_status in ('10', '20', '40') and rownum='
                                                                         Important where ott. IS DELETED='0' and ott.ORDER ROUTE STATUS <> '00' and ott.ORDER HEAD ID = oh.ORDER HEAD ID and ott.SEQ=1 and ott.order route status in ('20', '40') and rownum
                                                                      if S otl where oh.trans type='20' and otl.ORDER ROUTE STATUS <> '00' and otl.IS DELETED='0' and otl.ORDER HEAD ID = oh.ORDER HEAD ID and otl.SEQ=1 and otl.order route status in (
   (select oho.ship lot num from T _____ R oho where oho.IS DELETED='0' and oho.ORDER HEAD ID = oh.ORDER HEAD ID and rownum=1) as "shipLotNum"
   (select nvl(sum(case when t.stack_status="10' then t.total_net_weight else 0 end), 0) -nvl(sum(case when t.stack_status="20' then t.total_net_weight else 0 end), 0) from ddzx.t_jk_out_bill_head t where t.is_deleted=0 and t.sys_source=oh.sys_source and t.de
   oh.pre net weight-(select nvl(sum(case when t.stack status='10' then t.total net weight else 0 end), 0) -nvl(sum(case when t.stack status='20' then t.total net weight else 0 end), 0) from ddzx.t jk out bill head t where t.is deleted=0 and t.sys source=oh.s
   (select of BEGIN_MEMBER_SITE_CODE from 1______P of where of IS_DELETED='0' and of ORDER_HEAD_ID = of ORDER_HEAD_ID and rownum=1) as "beginMemberSiteCode"
   (select ot BEGIN MEMBER SITE NAME from 1 ot where ot IS DELETED='0' and ot ORDER HEAD ID = oh ORDER HEAD ID and rownum=1) as "beginMemberSiteName"
   (select ot.FACTORY OUT STOCK CODE from 1 - CROER TRIP ot where ot.IS DELETED='0' and ot.ORDER HEAD ID = oh.ORDER HEAD ID and rownum=1) as "factoryOutStockCode"
from .____ on Den__nenD oh
WHERE oh.IS_DELETED=:1
```





故障的源泉之四:不靠谱的开发理念



```
<select id="lc
        parameterType="(
                   <include refid="Base_Column_List"/> <include refid=":</pre>
                    <include refid="Base_Column_List"/>, <include refid="s</pre>
                    <include refid="Base_Column_List"/>
           <include refid="Base_Column_List"/>, <include refid="</pre>
    <where...>
```



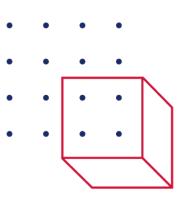
故障的源泉之四:不靠谱的开发框架

• • • •



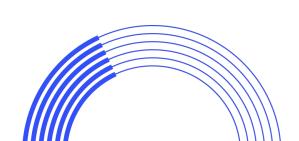


业务连续性直接影响到钱。



数据库不能成为瓶颈(但是确实大概率是瓶颈)

如何守护好数据库?







Thanks



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xuexiaogang 👤 上海宝山



扫一扫上面的二维码图案, 加我微信





四海内皆兄弟





(常) 微信搜一搜

Q四海内皆兄弟

