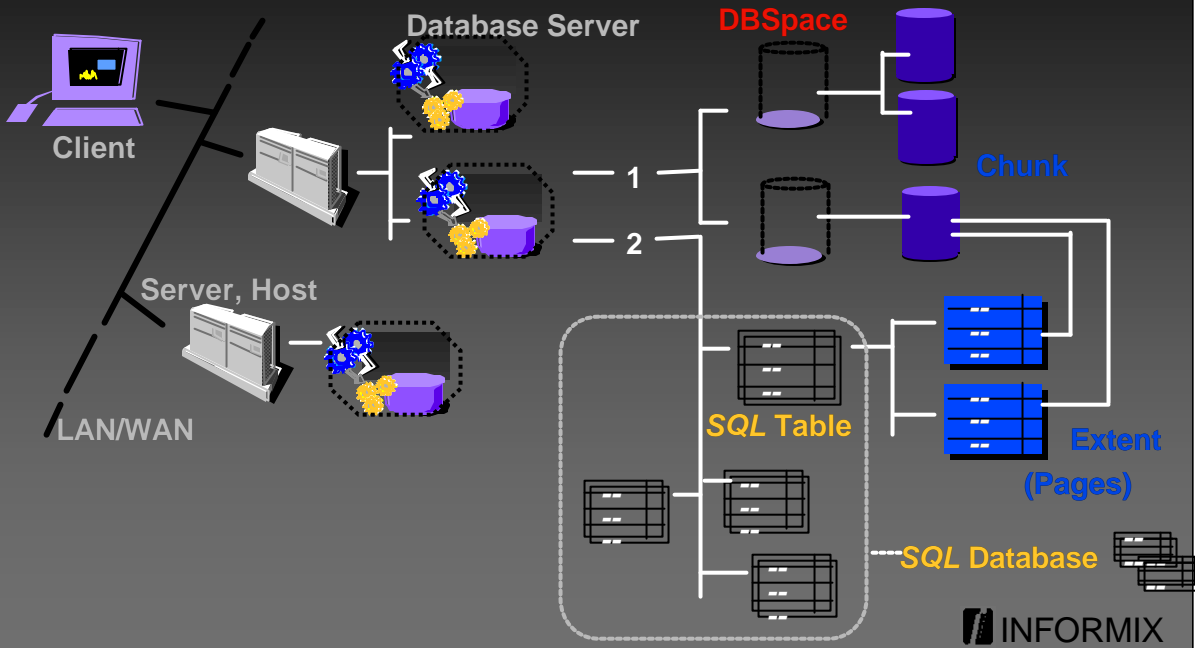
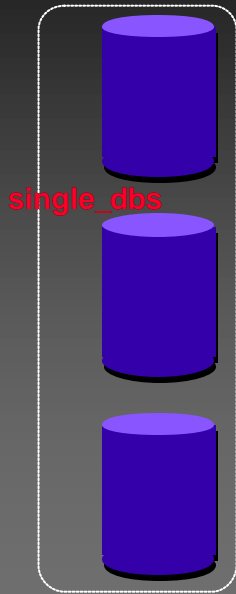


Disk Mgmt: Review, Big Picture ..



Disk Mgmt: Multiple DBSpaces ..



Single DBSpace:

- Less disk full conditions
- Serial chunk access
- Serial chunk consumption

Many DBSpaces:

- More disk full conditions
- Parallel dbspace access
- Higher availability
- Balanced disk I/O



 INFORMIX

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Disk Mgmt: What is on a given chunk ?



Locating tables:

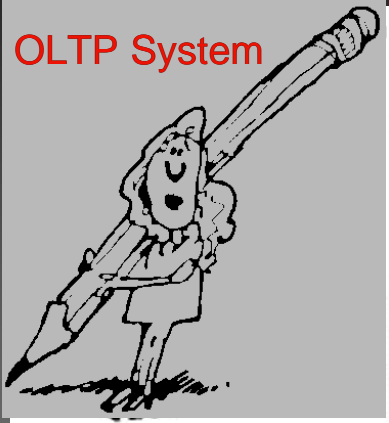
- oncheck -pe (I)
- SMI Query (SQL)
- Others



|||

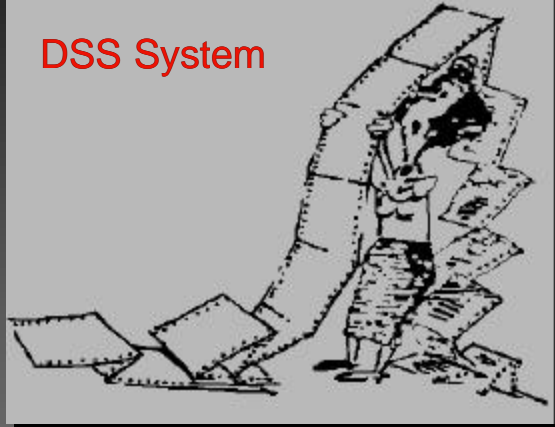
Disk Mgmt: Which are the High I/O Tables ?

OLTP System



- Logical, Physical Logs
- Data and Index Tables

DSS System

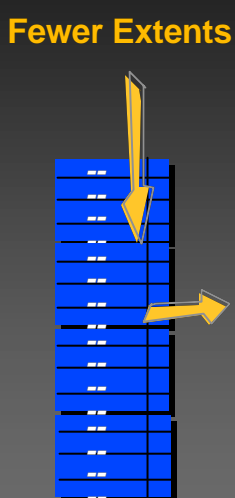
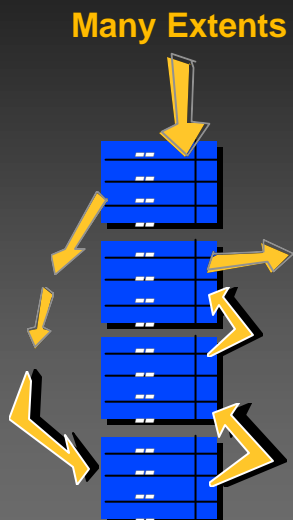


- Sort space, [DBSPACETEMP]
- Data Tables

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||

Disk Mgmt: Number of Extents per Table

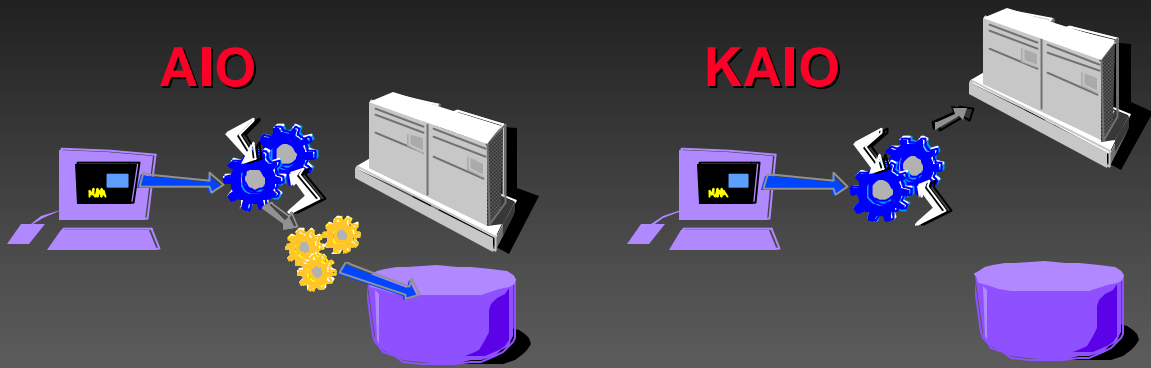


- More advantageous to have fewer extents versus more
- Controlled via `SQL CREATE TABLE` and `SQL ALTER TABLE`
- Database server server offers extent doubling, extent concatenation, etc, ..

Seek time,
Big Buffer Reads,
Physical I/O



Disk Mgmt: Review, AIO versus KAIO ..



Asynchronous I/O:

- Async, using 2 processes

Kernel Asynchronous I/O:

- Truly Async
- New standard
- Vector KAIO



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Disk Mgmt: Tuning AIO, onstat -g iov (I)

INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 6 days 02:30:27 -- 69664 Kbytes

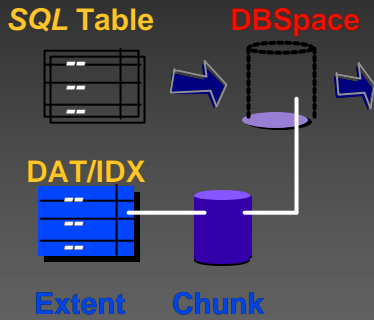
AIO I/O vps:

| class/vp | s | io/s | totalops | dskread | dskwrite | dskcopy | wakeups | io/wup | errors |
|----------|-----|------|----------|---------|----------|---------|---------|--------|--------|
| msc | 0 i | 0.0 | 95 | 0 | 0 | 0 | 89 | 1.1 | 0 |
| aio | 0 i | 0.0 | 1165 | 1030 | 119 | 0 | 700 | 1.7 | 0 |
| aio | 1 i | 0.0 | 948 | 883 | 60 | 0 | 576 | 1.6 | 0 |
| pio | 0 i | 0.0 | 12 | 0 | 12 | 0 | 13 | 0.9 | 0 |
| lio | 0 i | 0.0 | 71 | 0 | 71 | 0 | 72 | 1.0 | 0 |



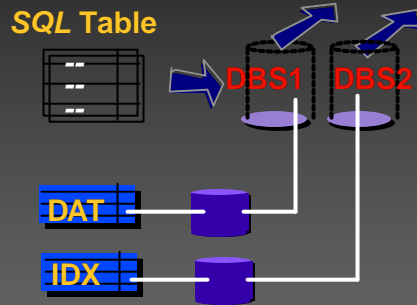
Disk Mgmt: Review, Number of Source DBSpaces

Default



```
CREATE TABLE t1  
( col1 INTEGER )  
  IN dbspace_1;  
CREATE INTEGER i1  
  ON t1 (col1)  
  IN dbspace_1
```

Detached Index

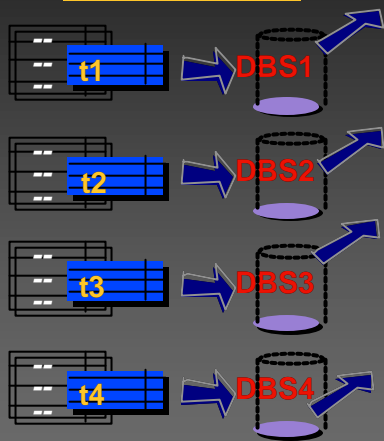


```
CREATE TABLE t1  
( col1 INTEGER )  
  IN dbspace_1;  
CREATE INTEGER i1  
  ON t1 (col1)  
  IN dbspace_2
```

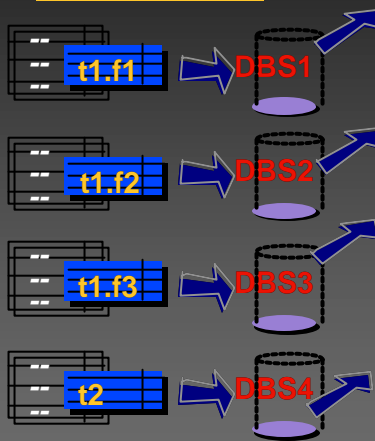


Disk Mgmt: Review, Number of Source DBSpaces

Multiple Tables



Mix and Match



o |

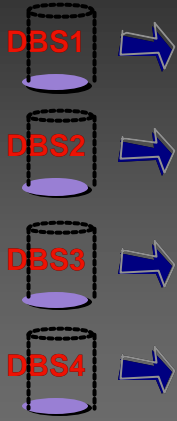
```

CREATE TABLE t1
( col1 INTEGER )
FRAGMENT ... IN
( dbspace_1, dbspace_2, .. );

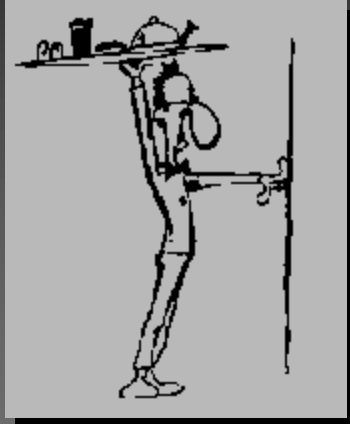
```

Disk Mgmt: Factors Affecting No. of Scan Threads

Number of Source DBSpaces



User's Requested [PDQPRIORITY]



Resource Grant Manager



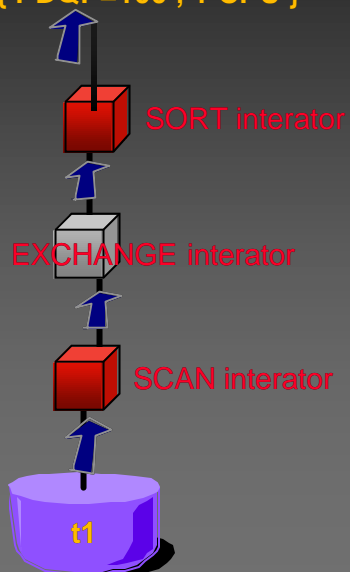
PDQPRIORITY = 0, Serial Access
 PDQPRIORITY > 0, Parallel Access as needed



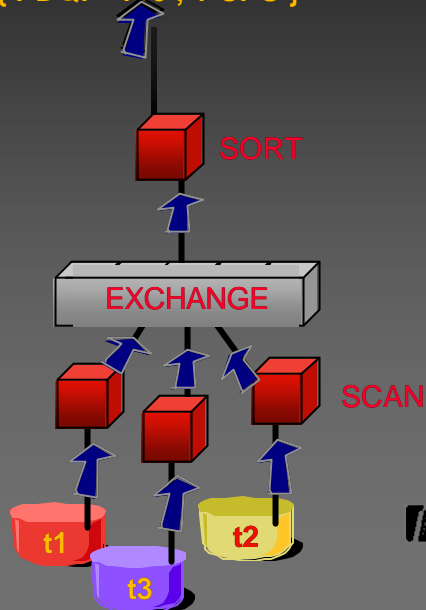
o l

Disk Mgmt: Parallel Example, 1 CPU ..

SELECT FROM t1
ORDER BY 1
{ PDQP=100 , 1 CPU }



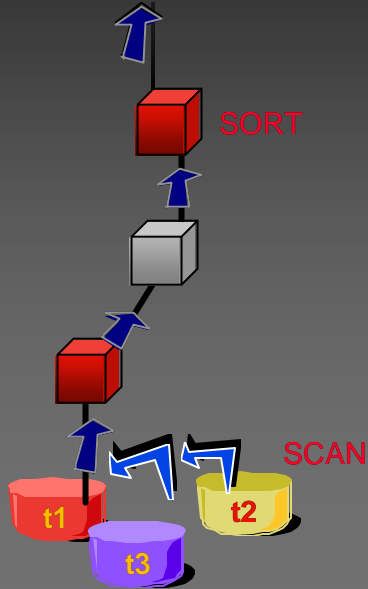
SELECT FROM t1, t2, t3
ORDER BY 1
{ PDQP=100 , 1 CPU }



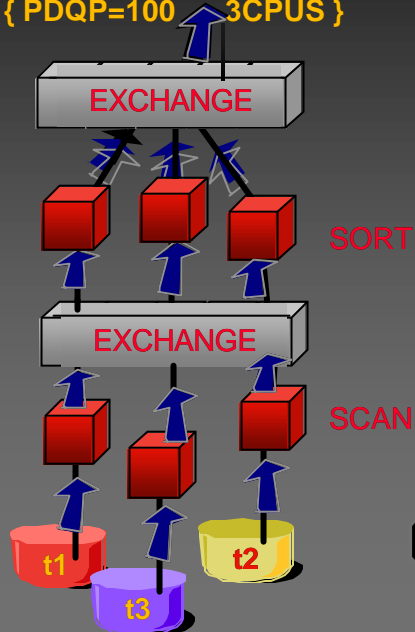
 INFORMIX

Disk Mgmt: Parallel Example, 3 CPUS ..

SELECT FROM t1, t2, t3
ORDER BY 1
{ PDQP=0, 3 CPUS }

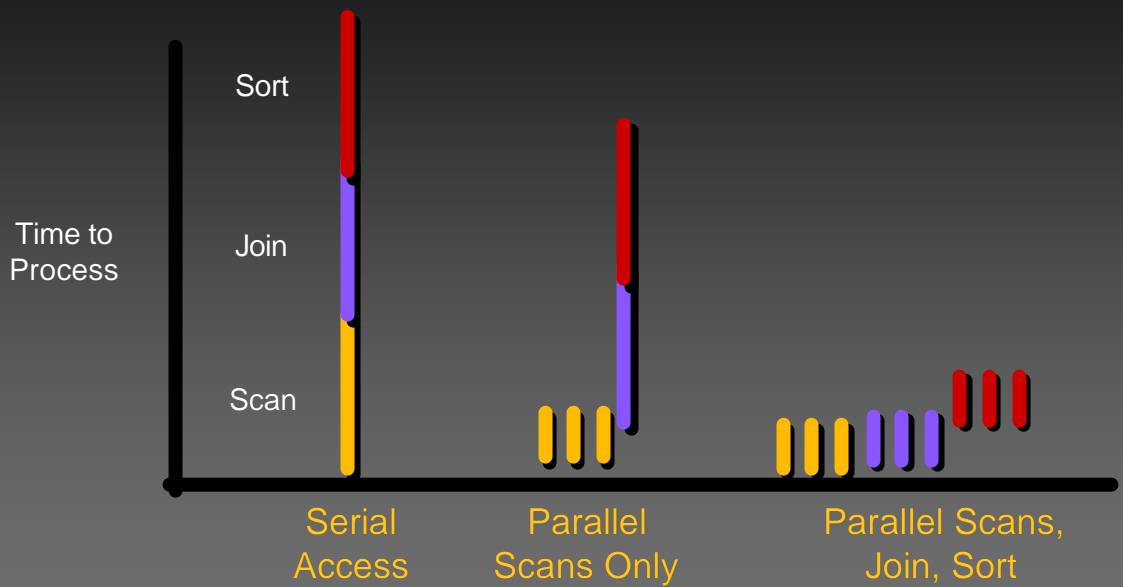


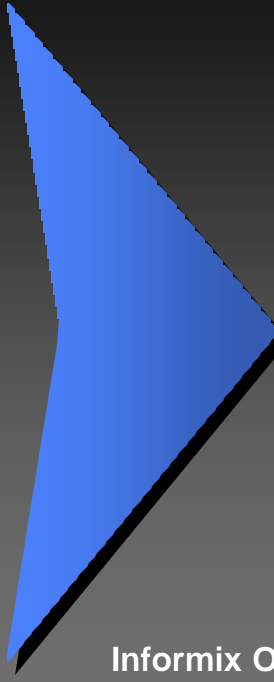
SELECT FROM t1
ORDER BY 1
{ PDQP=100, 3CPUS }



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Disk Mgmt: .. and Parallel Scan



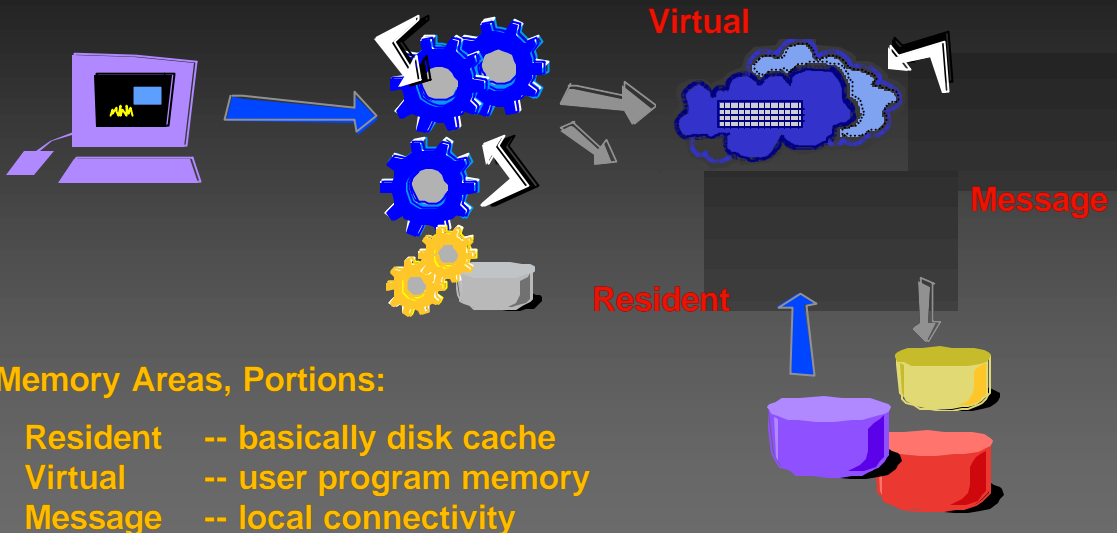


Disk Management
Memory Management
(Resident Portion)
Process, Thread Management

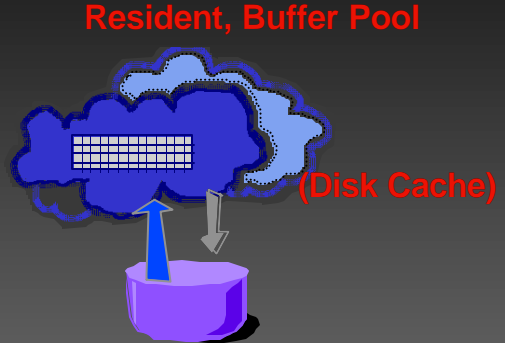
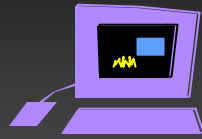
Informix OnLine
System Performance
Tuning I & II



Memory Mgmt: Review, Portions of Shared Memory



Memory Mgmt: Review, Resident, Buffer Pool



Resident, Buffer Pool:

- The ONLY place where OLTP end users read and write data pages
- Looking for ~95% cache read, ~85% cache write
- Determined by number of [BUFFERS] and the dependency on other disk tuning

 INFORMIX



Memory Mgmt: Buffer Pool, onstat -p (I)

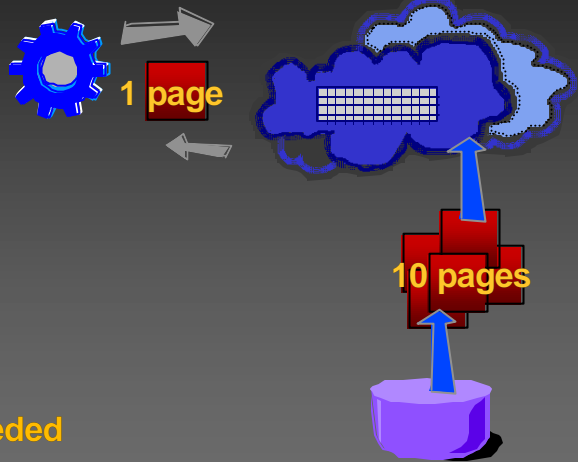
INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 6 days 02:30:18 -- 69664 Kbytes

Profile

| dskreads | pagreads | bufreads | %cached | dskwrits | pagwrits | bufwrits | %cached | |
|----------|--------------|----------|------------|----------|----------|----------|----------|--------|
| 2176 | 2194 | 163342 | 98.67 | 841 | 1015 | 3078 | 72.68 | |
| isamtot | open | start | read | write | rewrite | delete | commit | rollbk |
| 149431 | 6811 | 8207 | 62743 | 101 | 29 | 80 | 55 | 0 |
| gp_read | gp_write | gp_rewrt | gp_del | gp_alloc | gp_free | gp_curs | | |
| 1663 | 42 | 767 | 45 | 21 | 0 | 6 | | |
| ovlock | ovuserthread | ovbuff | usercpu | syscpu | numckpts | flushes | | |
| 0 | 0 | 0 | 35.86 | 10.31 | 8 | 1172 | | |
| bufwaits | lokwaits | lockreqs | deadlks | dltouts | ckpwaits | compress | seqscans | |
| 142 | 0 | 117409 | 0 | 0 | 0 | 14 | 1184 | |
| ixda-RA | idx-RA | da-RA | RA-pgsused | lchwaits | | | | |
| 346 | 0 | 167 | 414 | 5 | | | | |



Memory Mgmt: Review, Resident, Read Ahead Scan



Read Ahead Scan:

- Self configuring, used when needed
- Sequential scans, 2 types of index scans
- Determined by [RA_PAGES] and [RA_THRESHOLD]



III

Memory Mgmt: Read Ahead Scan, onstat -p (I)

INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 6 days 02:30:18 -- 69664 Kbytes

Profile

| dskreads | pagreads | bufreads | %cached | dskwrits | pagwrits | bufwrits | %cached | | |
|----------|----------|----------|---------|----------|----------|----------|---------|--|--|
| 2176 | 2194 | 163342 | 98.67 | 841 | 1015 | 3078 | 72.68 | | |

| isamtot | open | start | read | write | rewrite | delete | commit | rollbk |
|---------|------|-------|-------|-------|---------|--------|--------|--------|
| 149431 | 6811 | 8207 | 62743 | 101 | 29 | 80 | 55 | 0 |

| gp_read | gp_write | gp_rewrt | gp_del | gp_alloc | gp_free | gp_curs |
|---------|----------|----------|--------|----------|---------|---------|
| 1663 | 42 | 767 | 45 | 21 | 0 | 6 |

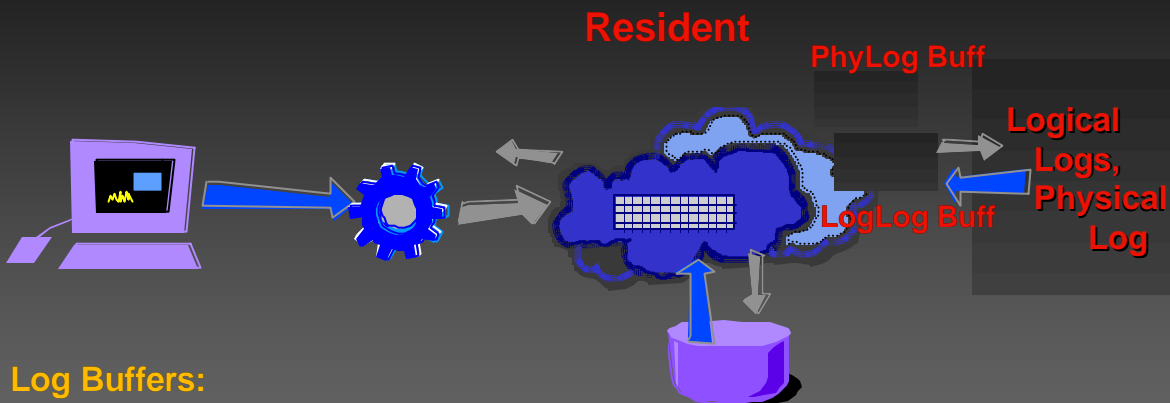
| ovlock | ovuserthread | ovbuff | usercpu | syscpu | numckpts | flushes |
|--------|--------------|--------|---------|--------|----------|---------|
| 0 | 0 | 0 | 35.86 | 10.31 | 8 | 1172 |

| bufwaits | lokwaits | lockreqs | deadlks | dltouts | ckpwaits | compress | segscans |
|----------|----------|----------|---------|---------|----------|----------|----------|
| 142 | 0 | 117409 | 0 | 0 | 0 | 14 | 1184 |

| ixda-RA | idx-RA | da-RA | RA-pgsused | lchwaits |
|---------|--------|-------|------------|----------|
| 346 | 0 | 167 | 414 | 5 |



Memory Mgmt: Review, Resident, Log Buffers



Log Buffers:

- Flushed on SQL/ COMMIT WORK
- Large enough, so as not to fill before absolute need for physical I/O
- Determined by [PHYSBUFF] and [LOGBUFF]

INFORMIX

III

Memory Mgmt: Log Buffers, onstat -l (I)

```
INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 6 days 02:30:18 -- 69664 Kbytes
```

Physical Logging

| Buffer | bufused | bufsize | numpages | numwrits | pages/io |
|--------|----------|---------|----------|----------|----------|
| P-2 | 0 | 16 | 141 | 12 | 11.75 |
| | phybegin | physize | phypos | phyused | %used |
| | 10003f | 1000 | 345 | 0 | 0.00 |

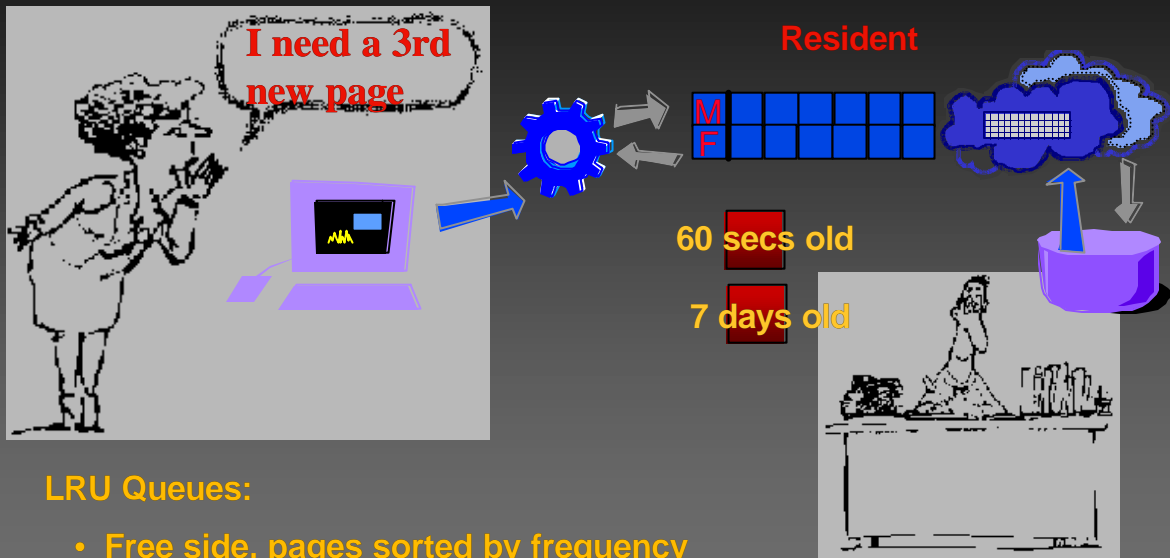
Logical Logging

| Buffer | bufused | bufsize | numrecs | numpages | numwrits | recs/pages | pages/io |
|--------|-----------|---------|---------|------------|----------|------------|----------|
| L-3 | 0 | 16 | 1455 | 116 | 71 | 12.5 | 1.6 |
| | Subsystem | numrecs | Log | Space used | | | |
| | OLDRSAM | 691 | 66724 | | | | |
| | SBLOB | 764 | 60812 | | | | |

```
.. {lines deleted}
```



Memory Mgmt: Review, Resident, LRU Queues

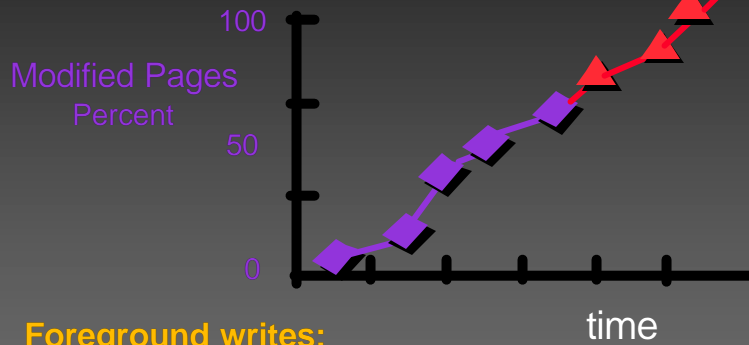


LRU Queues:

- Free side, pages sorted by frequency of access, re-used as needed
- Modified side, responsibility to eventually get page to the hard disk ..

||

Memory Mgmt: MLRU Queue, Foreground Writes



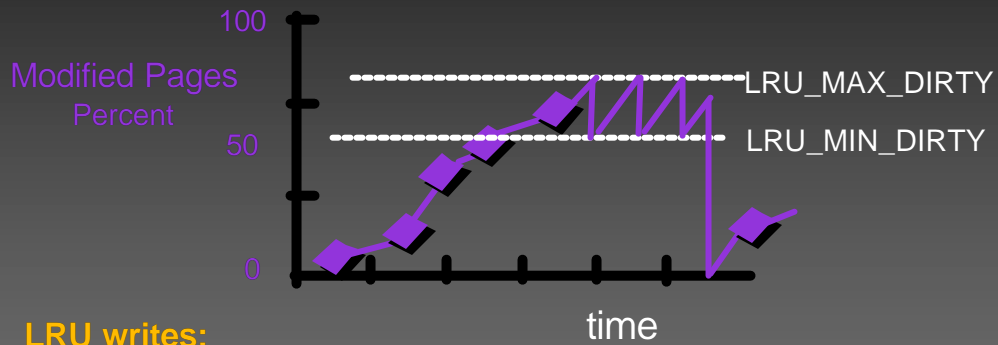
Foreground writes:

- No free pages to read, the end user is blocked
- Must be eliminated
- Standard disk tuning, and [LRU_MAX_DIRTY], [LRU_MIN_DIRTY]



o III

Memory Mgmt: MLRU Queue, LRU Writes



LRU writes:

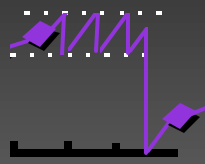
- “In-between” checkpoint writes
- Not sorted, I/O performed page by page
- Originally meant as prevention to foreground writes



o III

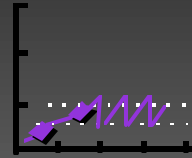
Memory Mgmt: MLRU Queue, Checkpoint Duration

Checkpoint Writes, LRU 50/60



Checkpoint Duration
(secs)

Checkpoint Writes, LRU 2/4



Checkpoint Duration:

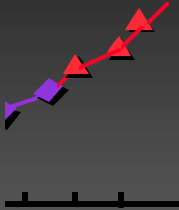
- The checkpoint is a semi-exclusive event. The user is inexplicably delayed, no error or time-out.
- The checkpoint duration is dependent on the number of the pages to be written and the performance of the disk sub-system .



||

Memory Mgmt: MLRU Queue, Which Write to Use ?

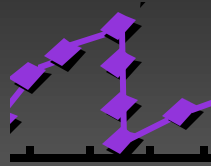
Foreground Write



Foreground writes:

- Must be tuned out
- Standard disk tuning
- [BUFFERS]

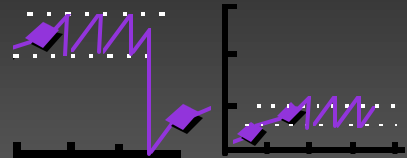
Checkpoint Write



Checkpoint writes:

- Semi-exclusive
- Fastest
- DSS
- LRU Max and Min Dirty, 50/60

LRU Write



LRU writes:

- Non-exclusive
- Fast enough
- OLTP
- LRU Max and Min Dirty, 2/4



Memory Mgmt: Types of Writes, onstat -F (I)

```
INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 6 days 02:30:20 -- 69664 Kbytes
```

| Fg Writes | LRU Writes | Chunk Writes |
|-----------|------------|--------------|
| 0 | 0 | 744 |

```
address flusher state data = 0X0  
b6ca538 0 I 0 = 0X0  
b6caa58 1 I 0 = 0X0  
states: Exit Idle Chunk Lru
```



Memory Mgmt: Forced Residency, onstat -g seg (I)

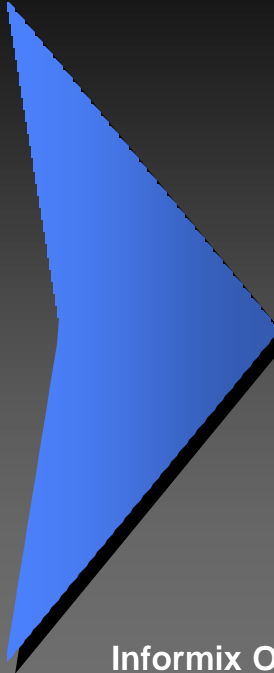
INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 6 days 02:30:25 -- 69664 Kbytes

Segment Summary:

(resident segments are not locked)

| id | key | addr | size | ovhd | class | blkused | blkfree |
|--------|------------|---------|----------|------|-------|---------|---------|
| 201 | 1382828033 | a000000 | 23207936 | 1188 | R | 2829 | 4 |
| 202 | 1382828034 | b622000 | 32768000 | 1092 | V | 620 | 3380 |
| 203 | 1382828035 | d562000 | 589824 | 604 | M | 68 | 4 |
| 104 | 1382828036 | d5f2000 | 15360000 | 828 | VX | 2 | 1873 |
| Total: | - | - | 71925760 | - | - | 3519 | 5261 |





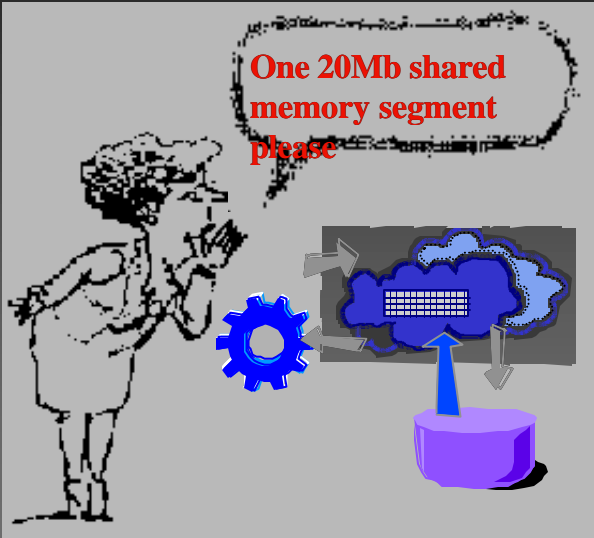
Disk Management
Memory Management
(Virtual Portion)
Process, Thread Management

Informix OnLine
System Performance
Tuning I & II



Memory Mgmt: Physical Memory Allocation

Database Server



Operating System



 INFORMIX

Memory Mgmt: Virtual Memory, onstat -g seg (I)

INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 6 days 02:30:25 -- 69664 Kbytes

Segment Summary:

(resident segments are not locked)

| id | key | addr | size | ovhd | class | blkused | blkfree |
|--------|------------|---------|----------|------|-------|---------|---------|
| 201 | 1382828033 | a000000 | 23207936 | 1188 | R | 2829 | 4 |
| 202 | 1382828034 | b622000 | 32768000 | 1092 | V | 620 | 3380 |
| 203 | 1382828035 | d562000 | 589824 | 604 | M | 68 | 4 |
| 104 | 1382828036 | d5f2000 | 15360000 | 828 | VX | 2 | 1873 |
| Total: | - | - | 71925760 | - | - | 3519 | 5261 |



Memory Mgmt: Virtual Usage, onstat -g mem (I)

INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 6 days 02:30:25 -- 69664 Kbytes

Pool Summary:

| name | class | addr | totalsize | freesize | #allocfrag | #freefrag |
|-------------|-------|---------|-----------|----------|------------|-----------|
| resident | R | a002018 | 2670592 | 12144 | 2 | 2 |
| res-buff | R | a28e018 | 20496384 | 14192 | 2 | 2 |
| global | V | b624018 | 172032 | 31672 | 505 | 29 |
| mt | V | b628018 | 3121152 | 1738072 | 4767 | 55 |
| smartblob | V | b664018 | 8192 | 6272 | 7 | 5 |
| ampool | V | b72e018 | 8192 | 7144 | 17 | 1 |
| opcpool | V | b730018 | 8192 | 4928 | 50 | 1 |
| inhpool | V | b732018 | 8192 | 7696 | 9 | 1 |
| XTF_mem | V | b750018 | 24576 | 13360 | 4 | 2 |
| main_loop() | V | b7da018 | 57344 | 29592 | 123 | 5 |
| 2 | V | b7e6018 | 8192 | 2288 | 10 | 1 |
| shmcon | M | d564018 | 548864 | 16240 | 2 | 2 |
| 3 | V | b7f4018 | 8192 | 2288 | 10 | 1 |
| 4 | V | b800018 | 16384 | 2040 | 209 | 1 |
| 6 | V | b812018 | 8192 | 2288 | 10 | 1 |
| 7 | V | b81e018 | 16384 | 2040 | 209 | 1 |
| onmode_mon | V | b874018 | 24576 | 6304 | 116 | 2 |
| 24 | V | b88a018 | 8192 | 2288 | 10 | 1 |
| 57 | V | b88c018 | 106496 | 10648 | 385 | 10 |
| 58 | V | b88e018 | 8192 | 2288 | 10 | 1 |



Memory Mgmt: Virtual Usage, onstat -g sql ID (I)

INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 1 days 21:59:14 -- 69664 Kbytes

| Sess | SQL | Current | Is | Lock | SQL | ISAM | F.E. |
|------|--------|-----------|-----|----------|-----|------|------|
| Id | Stmt | Database | Lvl | Mode | ERR | ERR | Vers |
| 46 | SELECT | sysmaster | CR | Not Wait | 0 | 0 | 9.03 |

Current statement name : slctcur

Current SQL statement :
select * from sysdatabases

Last parsed SQL statement :
select * from sysdatabases



Memory Mgmt: Virtual Usage, onstat -g ses ID (I)

INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 1 days 21:59:22 -- 69664 Kbytes

| session | | | | | #RSAM | total | used |
|---------|----------|-----|------|----------|---------|--------|--------|
| id | user | tty | pid | hostname | threads | memory | memory |
| 46 | informix | 1 | 4688 | spitfire | 1 | 114688 | 95768 |

| tid | name | rstcb | flags | curstk | status |
|-----|--------|---------|---------|--------|----------------------------|
| 66 | sqlxec | b6cbcd8 | Y--P--- | 1288 | b6cbcd8 cond wait(sm_read) |

| Memory pools | count | 1 | | | | |
|--------------|-------|---------|-----------|----------|------------|-----------|
| name | class | addr | totalsize | freesize | #allocfrag | #freefrag |
| 46 | V | bab4018 | 114688 | 18920 | 385 | 11 |

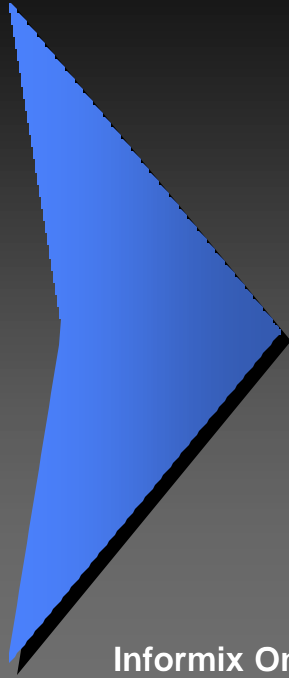
| name | free | used | name | free | used |
|--------------------|------|------|-----------|------|------|
| overhead | 0 | 120 | scb | 0 | 96 |
| opentable | 0 | 4360 | filetable | 0 | 856 |
| .. {lines deleted} | | | | | |
| sqtcb | 0 | 2088 | fragman | 0 | 1872 |

| Sess | SQL | Current | Iso | Lock | SQL | ISAM | F.E. |
|------|-----------|-----------|-----|----------|-----|------|------|
| Id | Stmt type | Database | Lvl | Mode | ERR | ERR | Vers |
| 46 | SELECT | sysmaster | CR | Not Wait | 0 | 0 | 9.03 |

Current SQL statement :

```
select * from sysdatabases
```



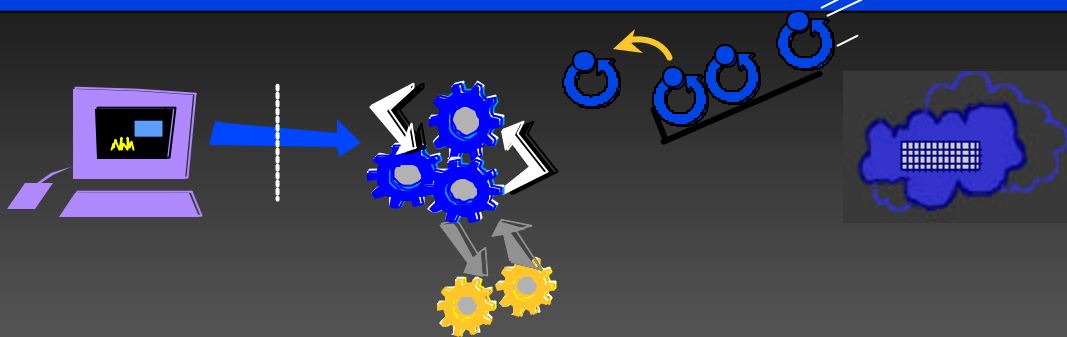


Disk Management
Memory Management
**Process, Thread
Management**

Informix OnLine
System Performance
Tuning I & II



Process Mgmt: Review, CPU VPS ..



CPU Virtual Processors:

- Work horse of the database server: sorting, filters, group by, joins, etc ..
- Core parallelism, fully multi-threaded fan-in, fan-out operations
- Non-blocking calls only
- Add or drop dynamically



III I

Process Mgmt: CPU VPS, onstat -g glo (I)

```
INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 6 days 02:30:25 -- 69664 Kbytes
```

```
.. {lines deleted}
```

Virtual processor summary:

| class | vps | usercpu | syscpu | total |
|--------|-----|---------|--------|-------|
| cpu | 2 | 21.16 | 4.81 | 25.97 |
| aio | 2 | 1.19 | 1.40 | 2.59 |
| shm | 1 | 0.75 | 0.91 | 1.66 |
| lio | 1 | 0.43 | 0.53 | 0.96 |
| pio | 1 | 0.42 | 0.38 | 0.80 |
| adm | 1 | 0.74 | 0.88 | 1.62 |
| msc | 1 | 0.30 | 0.05 | 0.35 |
| vir | 1 | 0.56 | 0.48 | 1.04 |
| verity | 1 | 10.31 | 0.87 | 11.18 |
| total | 11 | 35.86 | 10.31 | 46.17 |

Individual virtual processors:

| vp | pid | class | usercpu | syscpu | total |
|----|------|-------|---------|--------|-------|
| 1 | 1365 | cpu | 19.17 | 3.81 | 22.98 |
| 2 | 1366 | adm | 0.74 | 0.88 | 1.62 |
| 3 | 1367 | vir | 0.56 | 0.48 | 1.34 |

```
.. {lines deleted}
```



Process Mgmt: CPU VPS, onstat -g rea (I)

```
INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 6 days 02:30:24 -- 69664  
Kbytes
```

Ready threads:

```
tid    tcb          rstcb      prty status          vp-class      name
```



Process Mgmt: CPU VPS, onstat -g wai (I)

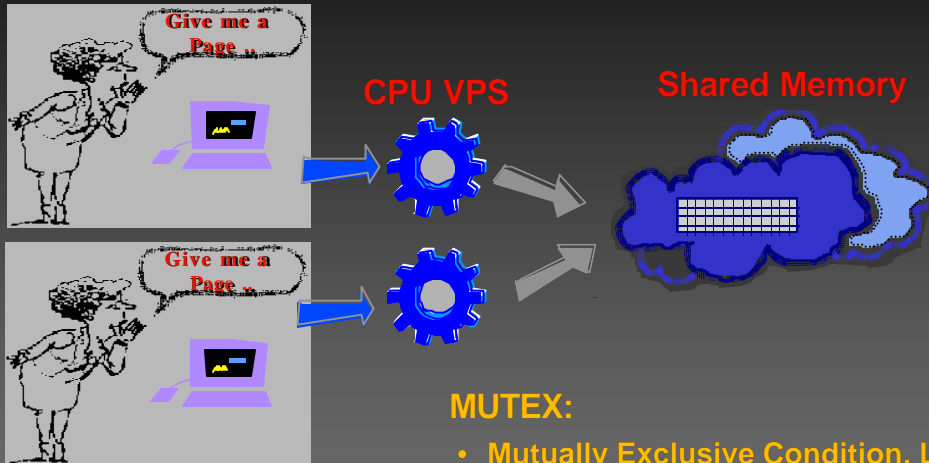
INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 6 days 02:30:24 -- 69664 Kbytes

Waiting threads:

| tid | tcb | rstcb | prty | status | vp-class | name |
|-----|----------|---------|------|-------------------|----------|--------------|
| 2 | b7591a8 | 0 | 2 | sleeping forever | 6lio | lio vp 0 |
| 3 | b759570 | 0 | 2 | sleeping forever | 7pio | pio vp 0 |
| 4 | b7598a0 | 0 | 2 | sleeping forever | 8aio | aio vp 0 |
| 5 | b759bd0 | 0 | 2 | sleeping forever | 9msc | msc vp 0 |
| 6 | b76c9f0 | 0 | 2 | sleeping forever | 10aio | aio vp 1 |
| 7 | b780720 | b6ca018 | 4 | sleeping secs: 1 | 1cpu | main_loop() |
| 10 | b795670 | 0 | 2 | sleeping forever | 1cpu | sm_listen |
| 11 | b7e4de8 | 0 | 2 | sleeping secs: 2 | 1cpu | sm_discon |
| 12 | b7e5470 | 0 | 3 | sleeping forever | 1cpu | tlitcplst |
| 13 | b7f0630 | b6ca538 | 2 | sleeping forever | 1cpu | flush_sub(0) |
| 14 | b7f0830 | b6caa58 | 2 | sleeping forever | 1cpu | flush_sub(1) |
| 15 | b7fee38 | b6caf78 | 3 | sleeping forever | 5cpu | aslogflush |
| 16 | b7ff1b8 | b6cb498 | 2 | sleeping secs: 21 | 1cpu | btclean |
| 31 | b7d4ab8 | b6cb9b8 | 4 | sleeping secs: 1 | 1cpu | onmode_mon |
| 77 | b7ff1180 | b6cc918 | 2 | cond wait sm_read | 1cpu | sqlexec |



Process Mgmt: CPU VPS, [SINGLE_CPU_VP]



MUTEX:

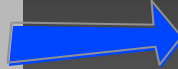
- Mutually Exclusive Condition, Lock used to support multiple processes accessing the same shared memory area
- If only 1 CPU VP is needed, set [SINLGE_CPU_VP] to avoid having to check for and place mutexes



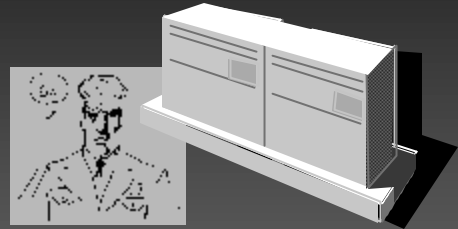
||

Process Mgmt: CPU VPS, [NOAGE]

Database Server



OS Process Scheduler



[NOAGE]:

- Pre-emptive multi-tasking OS process schedulers need this feature to give daemon programs the amount of job time that they require
- Set either to TRUE or FALSE



||

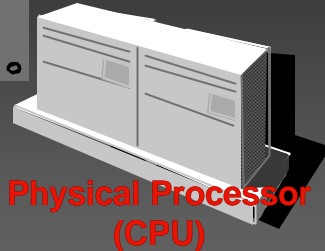
Process Mgmt: CPU VPS, [AFF_NPROCS]

CPU VP



But I
luvs you

Hey, its my
nature to
multi-task .



Physical Processor
(CPU)

Processor Affinity, [AFF_NPROCS]:

- Binds a process to a CPU
- Minimizes context switching
- Maximizes use of CPU cache

 INFORMIX

III

Process Mgmt: End Users, onstat -k (I)

```
INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 3 days 09:47:42 -- 69664 Kbytes
```

Locks

| address | wtlist | owner | lklist | type | tblsnum | rowid | key#/bsiz |
|---------------------|---------|---------|---------|--------|---------|-------|-----------|
| a0e624c | 0 | b6cd358 | 0 | HDR+S | 100002 | 207 | 0 |
| a0e62ac | 0 | b6cd358 | a0e624c | HDR+IX | 10025e | 0 | 0 |
| a0e651c | b6cbcd8 | b6cd358 | a0e62ac | HDR+X | 10025e | 133 | 0 |
| a0e6ffc | 0 | b6cbcd8 | 0 | S | 100002 | 207 | 0 |
| a0e702c | 0 | b6cbcd8 | a0e6ffc | IX | 10025e | 0 | 0 |
| a0e705c | 0 | b6cbcd8 | a0e702c | HDR+X | 10025e | 101 | 0 |
| ... {lines deleted} | | | | | | | |
| a0e795c | 0 | b6cbcd8 | a0e792c | HDR+X | 10025e | 131 | 0 |
| a0e798c | 0 | b6cbcd8 | a0e795c | HDR+X | 10025e | 132 | 0 |

```
55 active, 25000 total, 16384 hash buckets
```

Userthreads

| address | flags | sessid | user | tty | wait | tout | locks | nreads | nwrites |
|---------|---------|--------|----------|-----|---------|------|-------|--------|---------|
| b6cbcd8 | L-BPR-- | 84 | informix | 1 | a0e651c | -1 | 52 | 0 | 0 |
| b6cd358 | Y-BP--- | 83 | informix | 1 | b9f7900 | 0 | 3 | 40 | 776 |



Process Mgmt: continued, onstat -g sql (I)

```
INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 3 days 09:47:11 -- 69664  
Kbytes
```

| Sess | SQL | Current | Iso Lock | SQL | ISAM | F.E. |
|------|--------------|----------|-------------|-----|------|------|
| Id | Stmt type | Database | Lvl Mode | ERR | ERR | Vers |
| 84 | UPDATE (all) | dfarrell | CR Wait | 0 | 0 | 9.03 |
| 83 | DELETE | dfarrell | CR Not Wait | 0 | 0 | 9.03 |



Process Mgmt: continued, onstat -g sql ID (I)

INFORMIX-Universal Server Version 9.10.UC4 -- On-Line -- Up 3 days 09:47:34 -- 69664 Kbytes

| Sess | SQL | Current | ISO Lock | SQL | ISAM | F.E. |
|------|-----------|----------|-------------|-----|------|------|
| Id | Stmt type | Database | Lvl Mode | ERR | ERR | Vers |
| 83 | DELETE | dfarrell | CR Not Wait | 0 | 0 | 9.03 |

Current SQL statement :

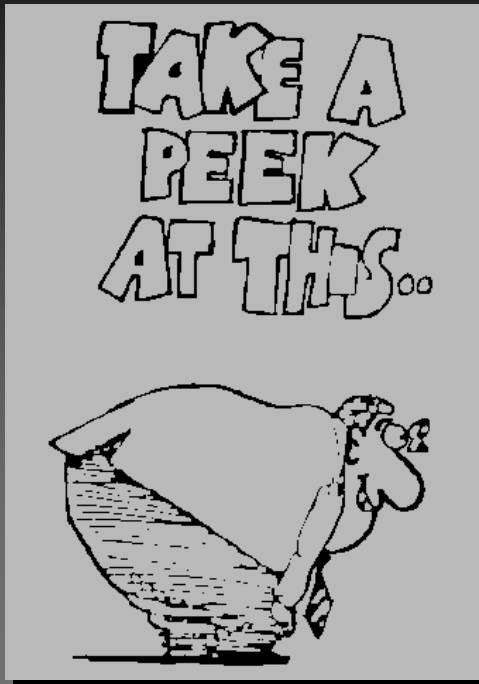
DELETE FROM t1 WHERE col1 = "t1"

Last parsed SQL statement :

DELETE FROM t1 WHERE col1 = "t1"



Process Mgmt: End Users, Secure Audit Feature

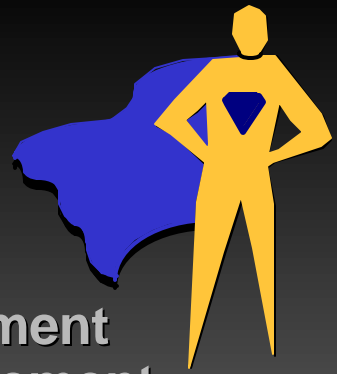


Secure Audit Feature:

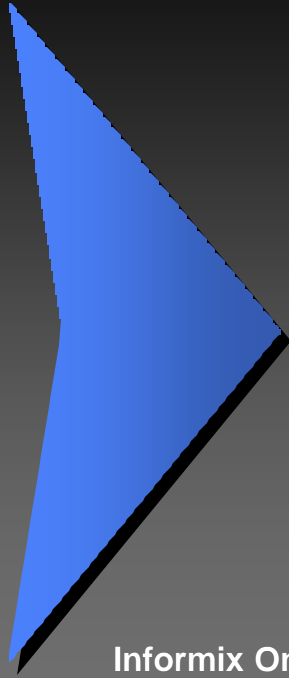
- Built into the database server
- Can report the success, failure or both of administrator and end user events
- Uses “masks” on end user accounts or “roles”
- Simple to use



||



Disk Management
Memory Management
**Process, Thread
Management**
(Topics not Covered)



Informix OnLine
System Performance
Tuning I & II



Process Mgmt: Topics Not Covered

Other Process, Thread Topics:

- [NETTYPE]
- [OPTCOMPIND]
- Other VP Types
- Data Replication
- More Resource Grant Manager



|| || |
