

The big mistakes

MRS/24

System is interpreter

1) Interpreter

- Large runtime system
- Slow

Options :

a) Compiler (System - R)

Should have been a right option.

b) Parse at compile time

Incrementally compile record selection (US)

Inter loop is most time critical

c) Compile what you can

Variable interface (RIGEL)

for a Report generator



The big mistakes (cont)

MRS/25

2) Validity checking at runtime
+
no attempt to optimise procedure

more what is possible to compile time.

- To compile time ←
- Descriptors are not cached ←
- Descriptors are not sent around on pipes
- Descriptors are not stored in the database (rebuilt every time)



The big mistakes (cont)

MRS/26

*a dbms system
should be I/O bound.*

3) Access methods

I/O-bound
assump.

- ISAM not perfectly sorted
- Hash buckets too big
- No notion of unique keys
- Descriptors are slow
- Overly general (replaceable)
- One more move than theoretically necessary (corrected)

file system too slow.

Should have written our own
file system ?



The big mistakes (cont)

MRS/27

4) Query processing

- Record selection not compiled
- No merge-sort tactic



The big mistakes (cont)

MRS/28

5) Should have abandoned 11/40s sooner

- Address space

*70k code \approx 512k relads.
address by k. slow to run 512k in this area.*

11's problems

- Address space
- No integer undefined (or real)
- No string move !
(fetch 10 bytes - 2 msec
512 bytes - 6 msec)



The big mistakes (cont)

MRS / 29

Project started in 1974 without conventions

- 6) Coding conventions are crucial
and maintenance is the pits

Meta theorem :

our code \approx 1000000 ^{lines of code.} ~~byte~~
(forever)

→ we can debug a system that
size



The big mistakes (cont)

MRS/30

7) Excessive generality

- Table driven entirely
- System catalogues not very special cased
- Indexes not special cased
- Macro processor too general
- Query processing in principle will handle arbitrary number of variables
- Some pokeyness
- Cleanliness

