Flexible Return and Exception Delivery (FRED)

The all new and spiffy™ x86 event architecture

Legacy: an odd mix

Interrupt Descriptor Table

Extreme CISC^{TM}

Multiple tables in memory

Preserves registers

Uses the stack
Optional switching not reentrant

SYSCALL

Extreme RISC^{TM}

No memory references

Clobbers registers

Stack? Leave it to software...

Conflicting designs that interact poorly

FRED

"CISC lite"

No memory tables

No "gaps"

Uses the stack

- Extensible superset of legacy
- Reentrant stack switches
- Avoid special registers

One mechanism

Common entry code

Extensible frame format

Adds information:

- Event type
- Instruction length (for rewind)

Closes holes:

- IRET NMI blocking
- ENDBRANCH lost
- STI shadow lost