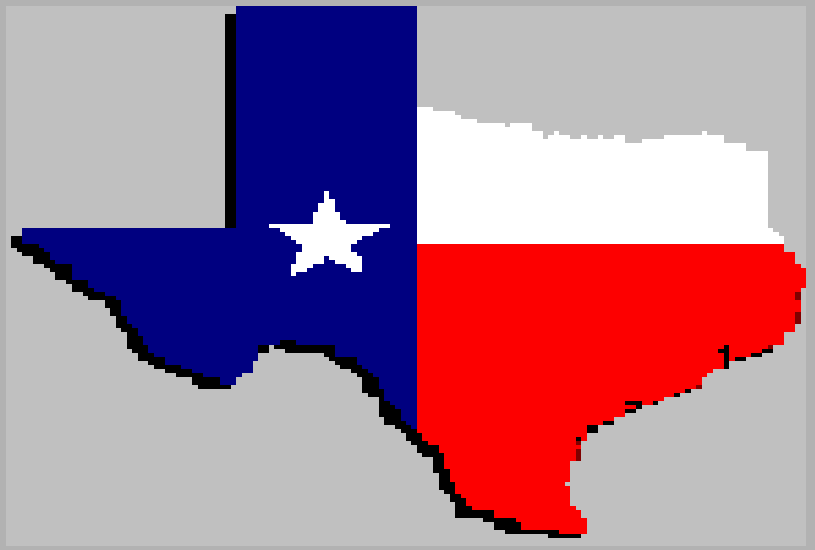
Warpstock 2002, Austin, Texas, USA
Austin Renaissance Arboretum
October, 5-6 2002



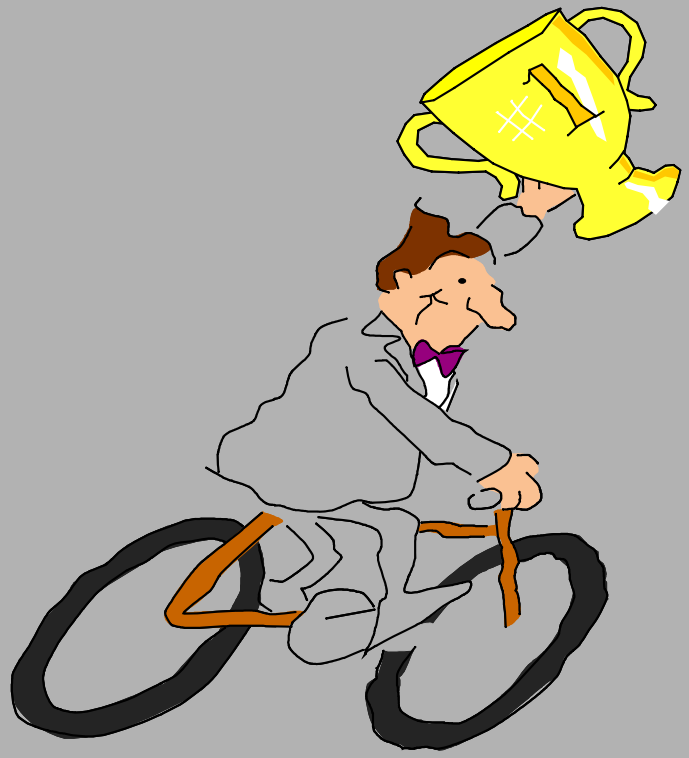
Sam Emrick,
IBM eBusiness Systems Performance

OS/2 Speed and Performance

emrick@us.ibm.com

OS/2 Performance Update Agenda

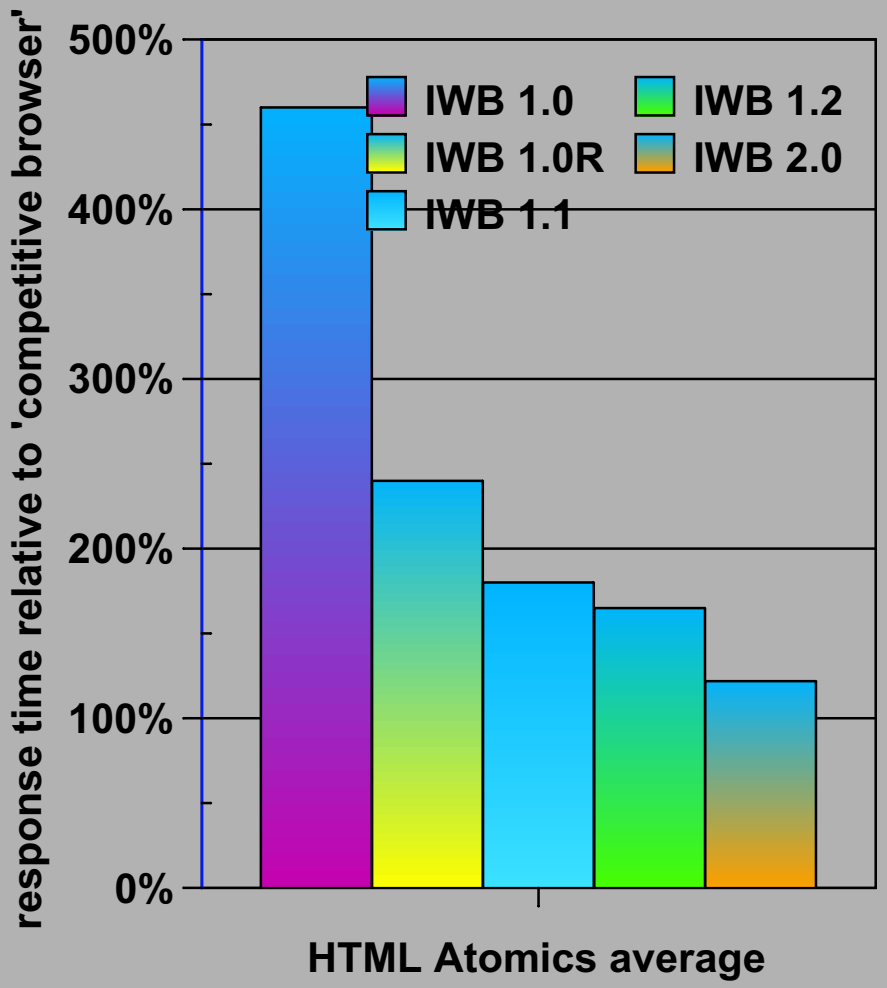
- IBM Web Browser
- Java 1.3.1
- Convenience Pak 2
- Hints and Tips
- Q's & A's

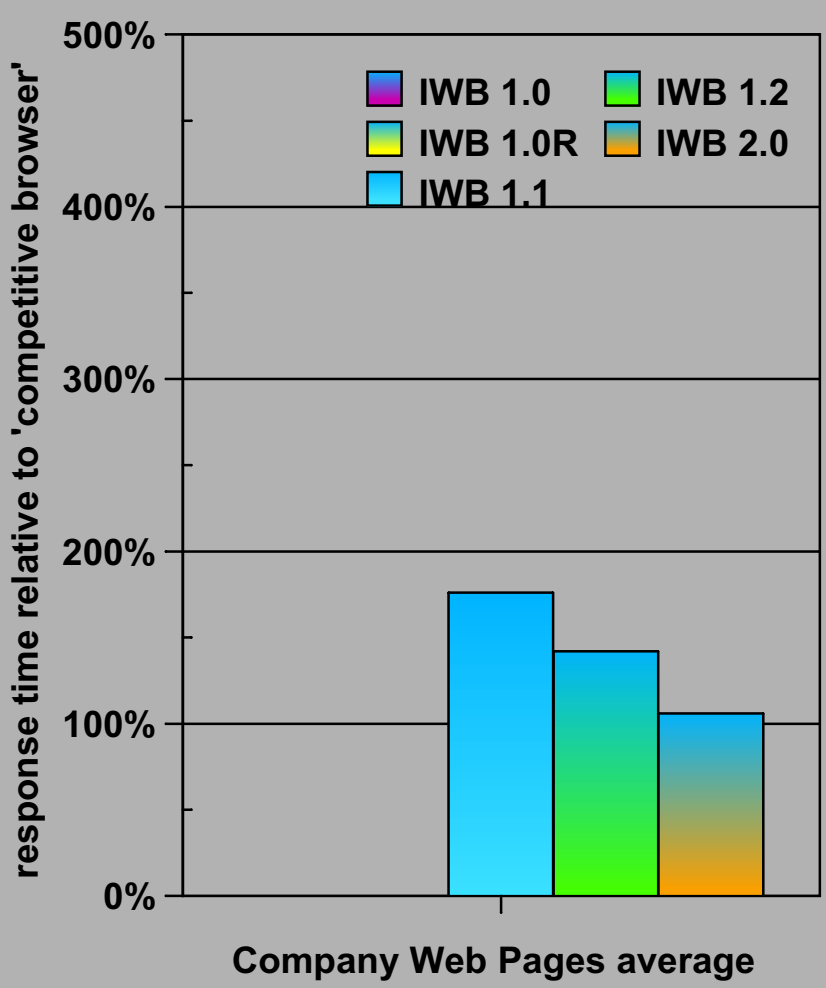


IBM Web Browser

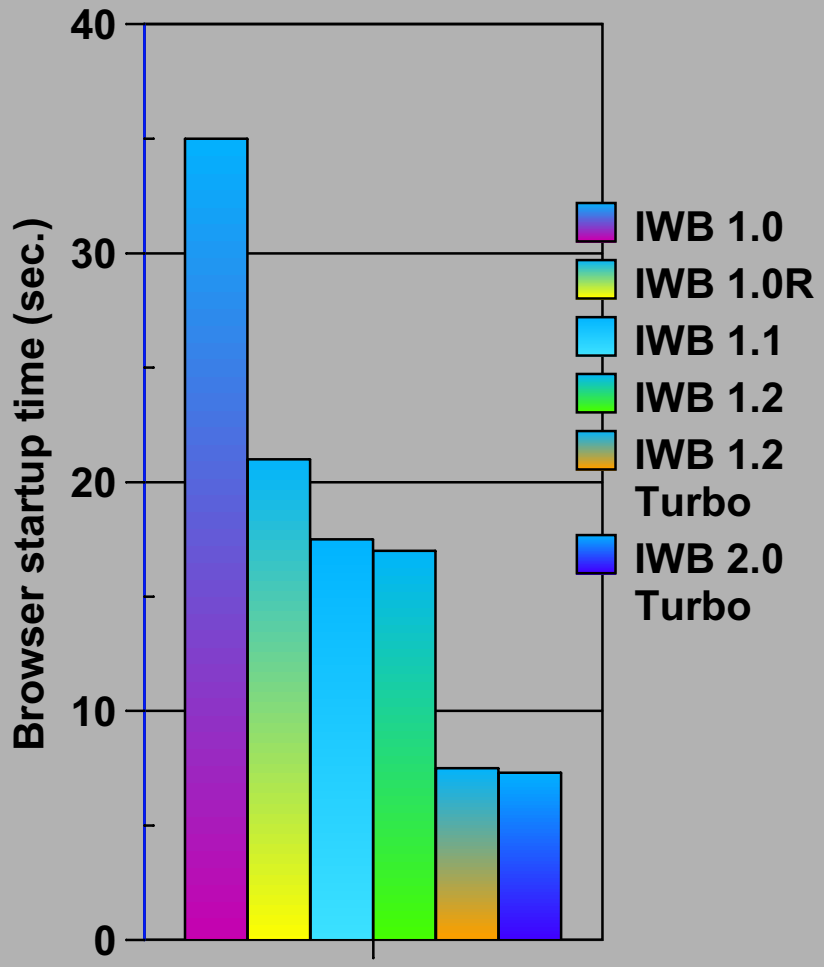
- Steady work in performance since IWB 1.0
- Mozilla base improvements
- OS/2 implementation improvements
- Result is vastly improved browser

IWB Performance History

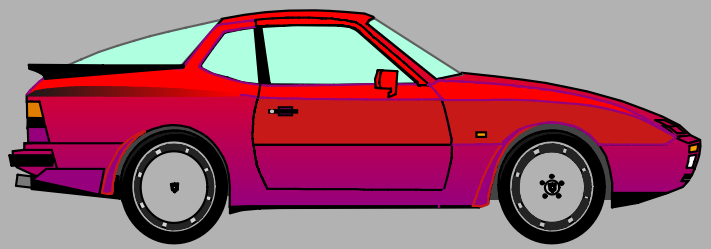




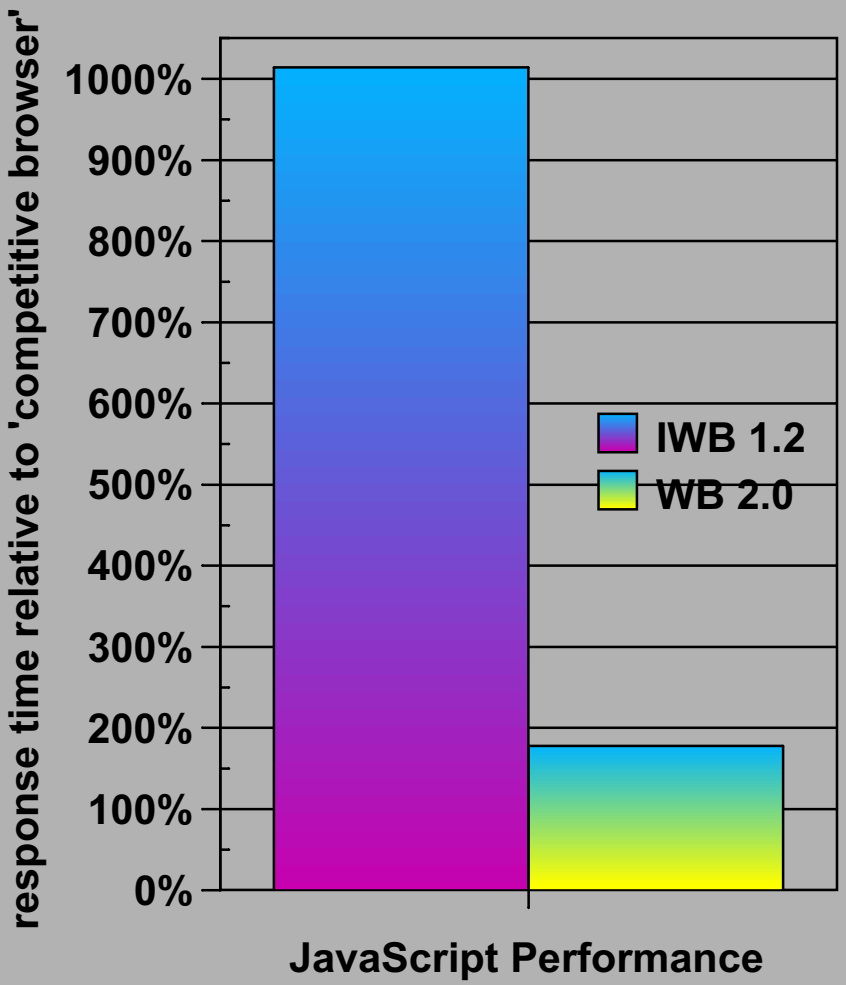
IWB Performance History



The OS/2-specific 'turbo mode' preloads browser DLL's at boot.



IWB Performance History



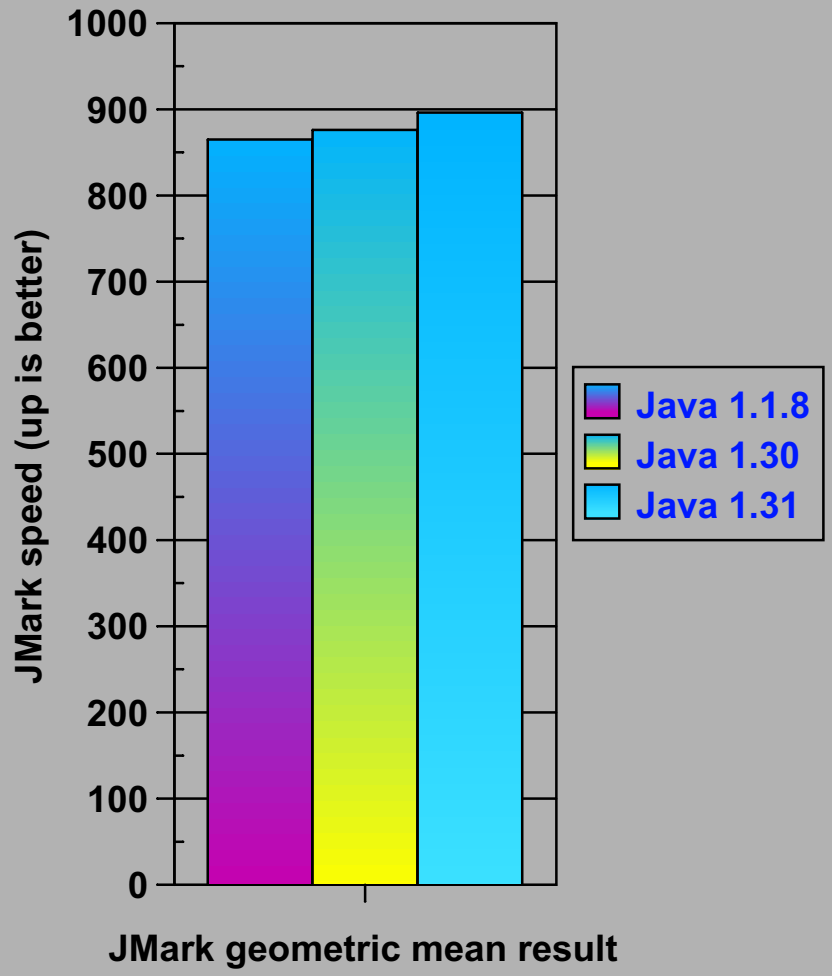
Much progress was made in JavaScript. It remains an area for more improvement.

IBM Web Browser

- **Full-function, standards compliant browser**
  - **See Mike Kaply's presentation about it!**
- **Now with competitive performance !!**

OS/2 Java Performance History

- The latest Java performance technology
  - IBM JIT
  - many refinements across the board



Java 1.31 Performance Optional Parameters

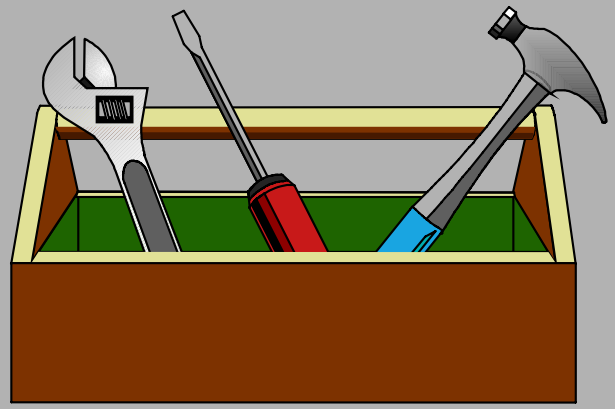
- New -Xquickstart
  - without it --- more aggressive JIT optimization
  - with it --- less aggressive, faster startup time
- SET JAVA_HIGH_MEMORY=1
  - without it -- heap uses process private memory
  - with it -- heap uses private high memory

OS/2 Convenience Pak 2

- Maintains performance of Convenience Pak
  - excepting minor fixes and tweaks
    - for example, TCPCFG2 and LVMGUI
- Compared to earlier releases....
  - JFS makes other OS/2 files systems seem slow

    (for most usual and typical kinds of workloads)

OS/2-related Performance Hints & Tips



OS/2 Performance - Hints & Tips
Browser & HTML

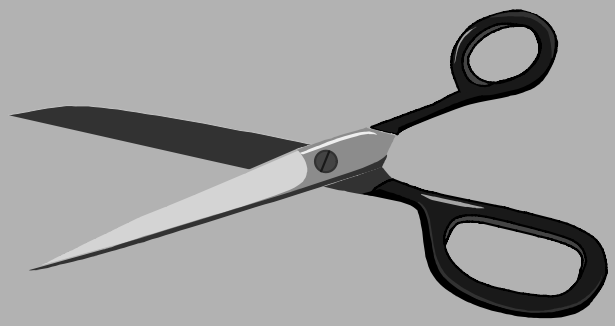
- The factor primarily driving browser performance is page content. 'Tight' content produces speed, sloppy content gives poor performance. 'Which browser' is secondary factor to speed.
- Design pages around 'form follows function'. Avoid useless eye-catchers, widgets, superfluous graphics, complex JavaScript. Focus on 'essential content', then add 'additional content' only as performance allows.

OS/2 Performance - Hints & Tips
Browser & HTML

- Use text attributes and style sheets for text, not GIF.
- HTML 'code cleaners/compressors' add useful performance. HTML comments and whitespace are relatively expensive.
- Scrub images, to correct scale, minimize color depth
- Extensive information on web page performance optimizations and tuning can be found on the web!

OS/2 Performance - Hints & Tips
Browser & HTML

- In Mozilla and IWB 'status bar' updates are expensive operations.
- 'Tabbed mode' browsing (use Ctrl-Enter) much faster than Forward-Back navigation.
  - Can 'bookmark' a set of pages together, loading all.



OS/2 Performance - Hints & Tips
Java

- Web and literature have much good information. Yet, common mistakes persist....
- Always and every time... use buffered I/O
  - Recent customer code example,
    - String tokenizer on RandomFile stream
      - was 15x slower than minor rewrite to
    - Steam tokenizer on BufferedStream

OS/2 Performance - Hints & Tips
Java

- Functional modularity is often abused.
  - 1-line functions calling 1-line functions...
    - is not the path to good Java performance.
- Avoid limited-use method overwrites.
  - Recent customer example....
    - dozens java/lang overwrites to do...
      - error debug message replacement text...
      - being piped to null in production code.

OS/2 Performance - Hints & Tips

Java

- Determine heap requirement (verbosegc), set starting heap to requirement.
- Reduce garbage collection by reducing the amount of garbage being produced.
- If at all possible, avoid JVM specific, platform-specific and 'workaround' code.

OS/2 Performance - Hints & Tips

Java

- Multiple Java application, multiple JVMs may consume much memory, because of having multiple JVM heaps.
  - Consider combining the multiple applications to run under a single JVM.
    - In many cases, implementation is trivial. However, in some cases, its very difficult.

OS/2 Performance - Hints & Tips
Java

- Timer granularity is platform-specific. Small values for sleep(), wait(), etc. will behave differently on different platforms. Normal OS/2 granularity is 32 ms.
  - sys.sleep(10) waits 3+ times longer on OS/2 than on Win NT.
  - However, on CPak see SET CLOCKSCALE

OS/2 Performance - Hints & Tips
OS/2 & SMP

- Memory, virtual and real
  - Remove unneeded system components.
  - Don't autostart seldom used function.
  - Insure any 16-bit programs properly linked.
  - Consider use HIGHMEM for large buffers.

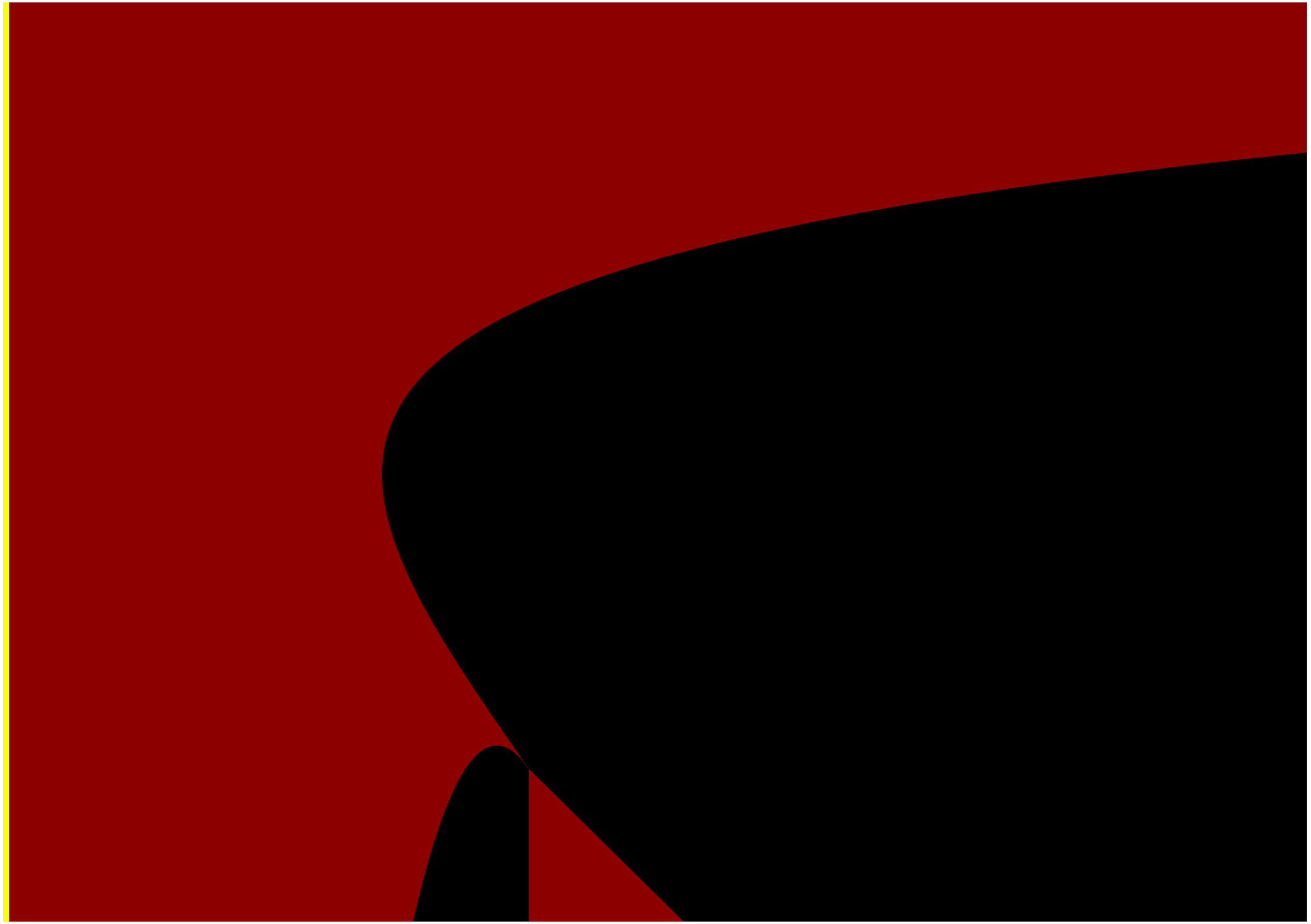
  - Modern s/w technologies requires modern h/w

OS/2 Performance - Hints & Tips
OS/2 & SMP

- Useful CONFIG.SYS changes
  - MAXWAIT=1
  - SET CLOCKSCALE=4
  - Review IFS cache sizes, especially JFS
  - RUN=... MPTSTART.CMD
  - Tune IBM1S506.ADD to actual h/w config
  - REM all the unneeded supports

OS/2 Performance - Hints & Tips
OS/2 & SMP

- SMP scaling, from 'near perfect' to 'near none', nearly entirely dependent on apps.
  - Multiple independent applications scale best.
  - Single-purpose systems/apps scale worst.
  - With SMP, effective use of hardware is key to achieve best performance.
    - fast disk subsystems, balanced utilization.
    - effective use of large RAM memory.



OS/2 Speed and Performance

The

End