

EXCELLENT PERFORMANCE with AGING HW

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TARGET: How to maintain the best possible performance with Hw that, day after day, becomes always more older, obsolete and, sometimes, no longer up to its job.

The safety factor (From *Programming Pearls*, by Jon Bentley):

The Brooklyn Bridge is the only suspension bridge of its era still standing, while a quarter of all the bridges of any type built in the USA in the 1870's collapsed within ten years of their construction. Why? It's because John Roebling had sense enough to know what he *didn't* know, so designed the bridge six times as strong as it would need to be and built a good bridge by employing a huge safety factor to compensate for his ignorance. Do we do that? We should design the way John Roebling did, and not the way their contemporaries did!

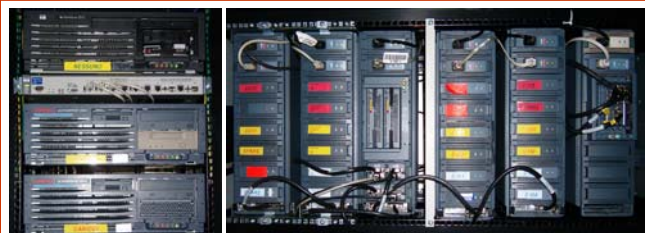


The real life:

Unfortunately, due to reasons we don't matter (budget restrictions, politics, etc.), always more often you have to administer a system chosen by someone else. It's my sad story...

For our departmental mail-server (and other services) I was given 2 powerful workstations (instead of real servers) and a storage subsystem no longer produced after a couple of months since the purchase. I had to keep this system working for 5 years, with the best possible performance and quality of service, by implementing an unbelievable huge number of fixes, tricks, patches and workarounds. This incredible case story follows.

TIME	EVENT	SYMPTOM	FIX/TRICK
2002	Brand new mail-server 5 Kmsgs/day	<i>none!</i>	
	Installed anti-spam filter 10 Kmsgs/day!	System load increases	<i>None!</i>
2003	Enabled Bayesian corr. for anti-spam filter	System load increases. Isolated overloads.	<i>None!</i>
	Install. content-scanner with anti-virus filter	Too much swapping. SMTP-OUT timeouts.	Increased RAM (doubled)
2004	15 Kmsgs/day	System overloaded. + "disk full" messages.	Enab. REJECT of SPAM. N.1 machine added. Storage increased (* 10).
2005	N.1 member added to the cluster	Less "reactive" due to <i>SCSI starvation</i>	All 3 members plugged to a SCSI arbiter
	20 Kmsgs/day	Disk I/O timeouts!	Swap to local disk. TMP moved to RAM.
2006	40 Kmsgs/day	Lock issues on file-based Bayesian DB	Bayesian (file-based) DB moved to MySQL server
<i>Performance still satisfied request: with this Hw LISA '06 paper accepted!</i>			
2007	60 Kmsgs/day	SMTP-OUT timeouts	SMTP-OUT moved to an external cache machine
<i>Replaced with NEW Hw and recycled as interactive machine: IT'S STILL ALIVE & KICKIN'!</i>			



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