

Re: RosAsm Team is Still Making Excuses

Source: <http://coding.derkeiler.com/Archive/Assembler/alt.lang.asm/2005-05/msg00407.html>

- *From:* "Beth" <BethStone21@xxxxxxxxxxxxxxxxxxxxxxxxxxxx>
 - *Date:* Tue, 10 May 2005 01:25:31 GMT
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Rene wrote:

- > But, well, yes, 5 Data Bytes, with RosAsm "consume" :))
- > 8 Bytes, and there is only an definitive idiot like
- > you, who coul care of "consuming" 1, 2, or 3 Additional
- > Byte(s) for each Data Block, in a System where the
- > Sections are aligned, in Files on 512 Bytes Boudaries
- > and, in Memory on 4096 Bytes Boundaries, with, usualy,
- > 3 Sections per Files, that "consumes" and average of:

Wolfgang: Rene appears to be calling you a "definitive idiot" here...

Personally, if Windows is, unfortunately, so AWFUL at using memory and disk properly then this would seem MORE REASON, to me, for being concerned to looking after it better, as far as one is allowed to do so (well, actually, more like a reason for switching to Linux and ELF files, where such stupidities are not enforced...yeah, there are things on Linux which aren't much better but that's caused mainly by "bloatware" C coding, not by Linux or ELF files themselves ;)...

Anyway, yes...you're not the only one who thinks like this, of course, Rene...but if we put the rationale into words then it's perhaps easier to see how somewhat "backwards" this kind of thinking is:

"Windows is awful, so we should make things WORSE!"

....which doesn't add up as making too much sense, really, does it?

Surely, BECAUSE Windows is so bad, then this really should mean that a programmer takes as much care as possible for these things to try to "compensate" for how bad Windows can be...

BECAUSE Windows has the "file alignment" and "section alignment" requirements then, well, this seems itself cause to attempt to keep the "section" count low...ideally, just one section...because though Microsoft say "Resource Section" and such, the actual references to the "entry point" and "import table" and "resource table" are actually made via RVAs in the "data directories"...hence, it is possible to "merge" all such sections together into a single section (MS's LINK.EXE, as was pointed out to me by

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someone here (thanks), has a poorly documented "-merge" option, where you can actually get MS LINK to automatically put all the various "sections" together...this tends to confuse the Hades out of OllyDbg, mind you, but squeezes it all together :)...

Basically, "section alignment" is between sections...and, hence, if you only have ONE section, then you only suffer "padding" once...an uninitialised data section does not need to be stored beyond a section header with no data but an appropriate "virtual size"...and Intel's warnings about code and data distinct for better cache performance refers to CS: and DS: / ES: / FS: / GS: because, of course, we're in "flat mode" and the CPU has no comprehension of Windows' "sections"...hence, so long as code is assembled in one location and data in another (which will be naturally accessed by CS: and DS:, going into the various caches properly_, which are distinct and non-overlapping (pad to 4KB to be sure?) then the x86 CPU won't care for whether you use one or more Windows' "sections" because it has no idea what that (pointless)OS abstraction is all about...

So, the "file / section alignment" thing only goes so far...there are certainly means for an assembly language programmer – with a good enough tool to allow them to do this – to do an awful lot better with Windows...and it's exactly because Windows is so bad that this is exactly what we should be aiming for...

After all, if a shop is expensive, then this is reason to look for the CHEAPEST items they sell, right? If a car is broken, then this is reason to take it to a mechanic to get it FIXED, yes?

So, how come the rationale defies all logic and common sense when Windows is involved? As, for some odd reason, many seem to think that because Windows is "bloated" then this is reason to MAKE IT WORSE!

This is like walking into the expensive shop and finding the most expensive item and then paying TWICE its actual price, just because the prices aren't cheap...yeah, that makes sense...because you can't get the items cheaply, you should proceed to unnecessarily bankrupt yourself and pay the shop far, far more than they are actually asking for...why, the prices in that store are far too high...so, of course, "twisted logic" dictates that you should MAKE IT WORSE!! You should actually pay TWICE – no, THREE TIMES – more to the shop than the item actually costs!! Yes, they aren't expensive enough! Like it or not, we're going to pay them MORE than they are actually asking for...

Sounds like absurd logic, doesn't it? If you saw someone doing that, then you'd think they were ever-so-slightly certifiably insane, right?

Well, yeah...exactly...

And what do you think goes through my thoughts when I see people using the exact same rationale with Windows: "Windows is terribly, terribly bloated...it's so, so monstrously big and slow that, of course, every

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programmer should endeavour to MAKE IT WORSE!! Yes, it's not bloated enough! We must add more and more bloat...so, you think you can make it smaller? Save a few bytes? Are you mad?!? We don't want this! We want more and more bloat...make it worse! Make it worse!"...

Sorry, but the opposite should be true...you are pointing to how bad Windows is...exactly...so, DON'T MAKE IT WORSE...indeed, if you do, then aren't you exactly just as much guilty of "bloating" as Microsoft themselves are?

After all, why do you think Windows itself is so bad? Because its programmers also started thinking: "Oh, it won't matter to lose a few bytes using C...oh, it won't matter if that small thing isn't efficient...oh, it won't matter if...oh, it won't matter if..." and, to an extent, it's quite true that, in the individual cases, it's all pretty "immaterial" ...alone, these "small things" don't really mean a great deal...

BUT we're NOT actually talking about "individual cases", are we? The WHOLE SYSTEM needs to be considered...and all the "who cares?" bytes lost here, all the "it doesn't matter" kilobytes lost there, all the "machines'll be better tomorrow" CPU cycles lost over there...all of it...little-by-little...byte-by-byte...cycle-by-cycle...

It's like, in the 1970s, someone poured a can of "goodness" into computers...and, over the years, a small "leak" developed...drip, drip, drip...there goes the "goodness" ...ah, it doesn't matter...look, it's only a byte...it's only a cycle...who cares? A single lost drop of "goodness" doesn't matter, yes? Drip, drip, drip, drip...

Until, in 2005, someone else pulls off the lid on their PC to look into the "fuel tank of goodness" ...and, oh crap, the tank's running completely on "empty" now...

Yeah, an "individual drop"? Who cares? So, you just stand there watching: Drip, drip, drip, drip...no need to act...all of these are just "drops" ...none of which mean a single thing individually...so, you just let them go: Drip, drip, drip, drip...no, the big pool of liquid on the floor, it's no kind of "clue" about what's going on...that the pool of liquid on the floor from all the "drops" is clearly far, far more than just "individual drops" ...no, nothing to worry about...because, you see, all I'm seeing dripping out the side are "individual drops" and we're all in agreement: "Individual drops lost are meaningless", right? Drip, drip, drip, drip...

It's basically a case of "attrition"...a slow and gradual "decay" ...

"What's in a byte?", you say...

The entire world...a byte can be colours, numbers, conditions, events, pixels, sounds, notes, co-ordinates, characters, words, locations, languages, etc., etc....basically, a byte can be anything you want it to

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be...the most "polymorphic" entity available to humankind, basically...

So, quite literally: "what's in a byte?"...absolutely EVERYTHING is in a byte...both literally and metaphorically...

Hence, I'm with you on this, wolfgang...don't surrender a single byte or cycle without at least putting up a fight for it...as the programmers of the past were capable of doing so much with so little simply because the hardware forced them to adopt that attitude...they could not choose anything else...but now that we have the alternative option? Nah, we STILL should choose the exact same choice...this time, though, it's willingly because now we've learnt the COST of our decision...

I point again to the obvious and blatant "connection" that surprisingly few people ever make...on the one hand, they advocate "time to market"...they advocate all these "sloppy programming" habits...they say this is a Good Thing...but, then, such "theory" does not live inside a "bubble"...there's a simple measure of whether these ideas and techniques actually work...most software these days is written by following these "philosophies"...and what do we see?

Are we stunned and awestruck by the speed, by the brilliance, by the professionalism of the leading Microsoft Windows operating system? Well, Microsoft, if anything, are the "poster child" for these "who cares?" philosophies...they do it better than anyone else...

So, you know, make that "connection" between the "cause" and its "effect"...the piles of crap software that we're all using? Well, THAT IS THE RESULT of following these attitudes...obviously, of course...because that's the dominant attitude of programmers and that is what directly results from them following that attitude...

It's hardly rocket science, yes? Simply a case of "look before you leap"...before "leaping" to copy Microsoft's practices, before "leaping" on a "theory" that such-and-such sloppy programming "doesn't matter"...well, LOOK at what it produces...LOOK at the heap of crap that is software that's foisted upon you today...and, before you "leap" to copy, realise exactly what it is that you are duplicating...

Sorry, Rene...but you claim to be a "real assembly programmer" ...and then claim that this stuff "doesn't matter"...and, well, you might use assembly mnemonics (sometimes, in between lots of "IF" statements) in your programs...but I don't recognise an actual assembly language programmer there at all...

On the other hand, I very much see an assembly language programmer in wolfgang...and it's not because he uses "hex coding" (though that IS a kind of "symptom") but because of his ATTITUDE to every byte and cycle in the program...they DO matter...you can't always save every single one...sometimes, we simply just don't have the time available to do it absolutely...but the attitude should be that we TRY to save every single

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byte and cycle but, regrettably, it cannot all be done...

Even in Herbert I can see the right attitude...yes, he advocates using HLLs when it "doesn't matter"...but when it does matter, it's time to even get obsessed with "hand-coding headers"...my only point of disagreement with Herbert would be to say that it _ALWAYS_ "matters", in fact..._EVERY_ redundancy, _EVERY_ inefficiency _IS_ a "wound"...but, as "doctors" here, we do, regrettably, have to accept that we can't save every single "patient"...but we will _TRY_ to do so...and, as our time is not infinite, then HLLs and HLLisms can be used to speed through "non-emergency cases"...BUT only in the pursuit, if you will, of supplying _more time_ in order to deal with the "emergencies"...

The difference in attitude might be subtle but I think it's all important...it's the difference between "good enough" and _GOOD_ software...it's all "in the details"...that attitude of pushing it _just that little bit further_ than you strictly need to do so...not because it's "needed" but simply because it's _wanted_...

Good painters take a paintbrush and use their natural artistic talents...

But someone like Da Vinci took the time to compose his paintings first...to calculate in his little scrapbooks where the light would land mathematically...to measure out "golden sections" and geometric shapes on which to "hang" his painting in compositional terms...to study the biology of the humans and animals he had to portray to understand the muscle structure beneath their skin...and _THEN_ he picked up his paintbrushes...

It is the difference between merely "okay" and "a work of genius"...it's all in the details...in taking it just that little bit further than you strictly need to do...in popular saying, it's interesting to note that both God and the devil are attributed to being "in the details"...I suppose that's because if you _care_ for the "details", you find the good of God...but if you do not care for the details, then you'll only find the bad of the devil...that this is the difference...that the "battle" is waged at that level...

Beth :)

- *Follow-Ups:*

- ◆ *Re: RosAsm Team is Still Making Excuses*

- ◇ From: wolfgang kern

- *References:*

- ◆ *Re: RosAsm Team is Still Making Excuses*

- ◇ From: randyhyde

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◆ **Re: RosAsm Team is Still Making Excuses**

◇ From: Betov

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