

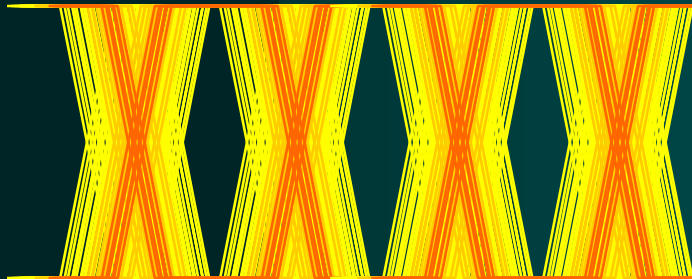
It's a small SAN after all...

Can Fibre Channel Jitter Standards Bring
Harmony to a Tumultuous Network?

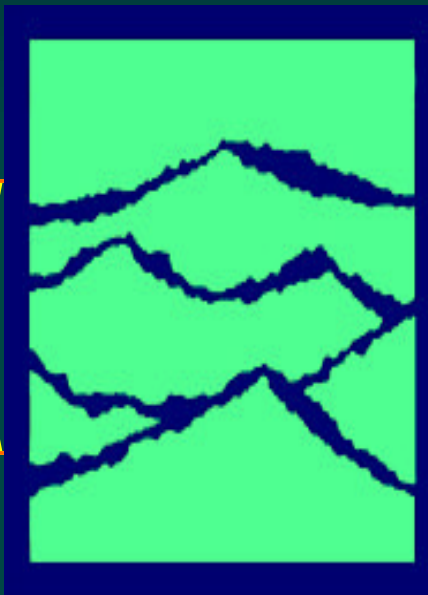


Yes...With the right tools!

Before



After



And it is all a matter of timing.



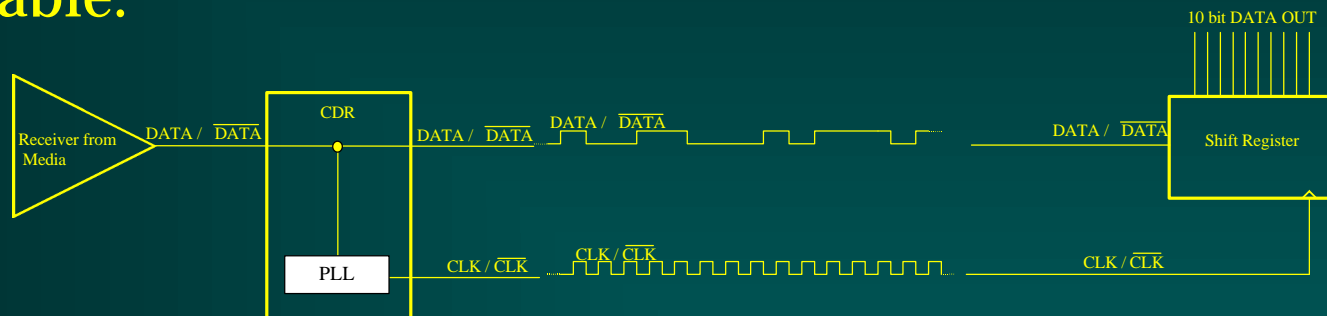
What does timing have to do with it?

- Once protocol issues are resolved and hand shaking is complete, Jitter is the final frontier.
 - Functionality verification is pretty straight forward. Quantifying the quality of performance used to be quite difficult.
- Jitter is a significant problem
 - Higher data rates → shorter bit periods → smaller timing budgets → tighter jitter tolerances
 - Jitter contributing to error rate
 - Traditional tools aren't telling us anything
 - O'scopes and BERTS can't tell us what is causing the problem nor which jitter component is in excess.
 - They can only tell us that there may be a problem...maybe..



No Jitter is Good Jitter, Right?

- Wrong...
- Jitter below the cutoff Frequency (F_c) of the CDR is tolerable.

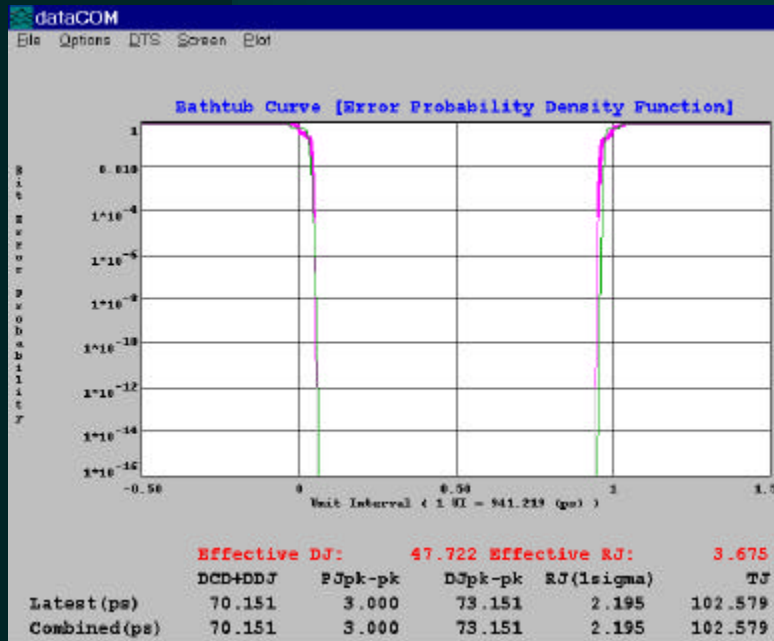


- The CDR will track Periodic Jitter (PJ) below F_c of PLL
- Some amount of each jitter component is inevitable.
 - Knowing how much is too much is the key.
- It is critical to analyze the jitter components on the data stream alone. Do not use an uncorrelated clock source.

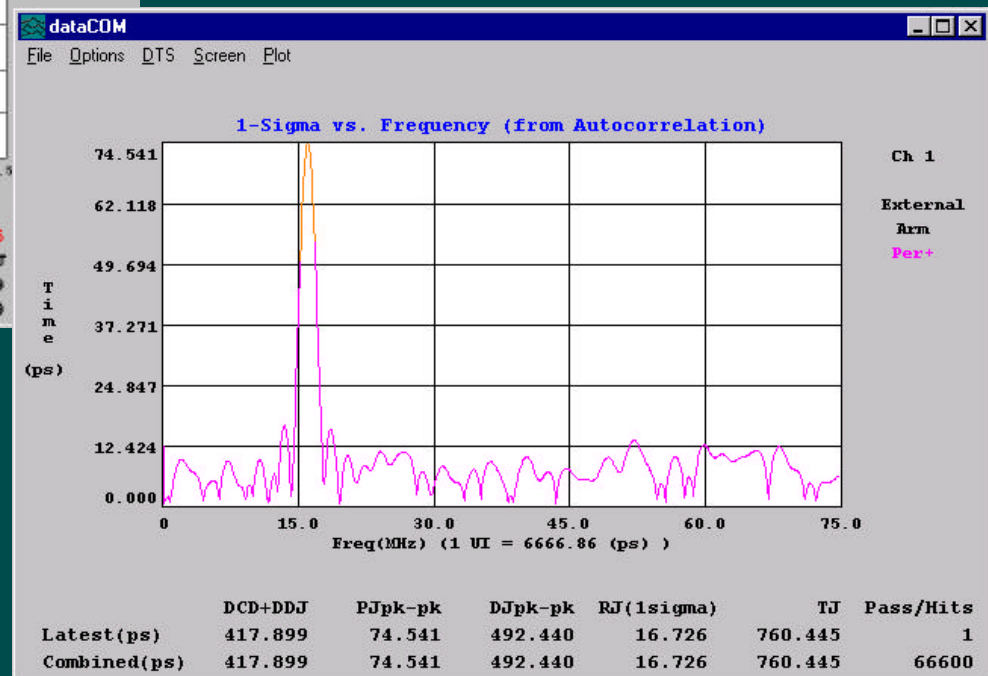


How Can I tell the Difference?

- Using Wavecrest VISI Analysis tools!!



All this analysis from just the data stream, without a bit clock.



The right tool for the right job.

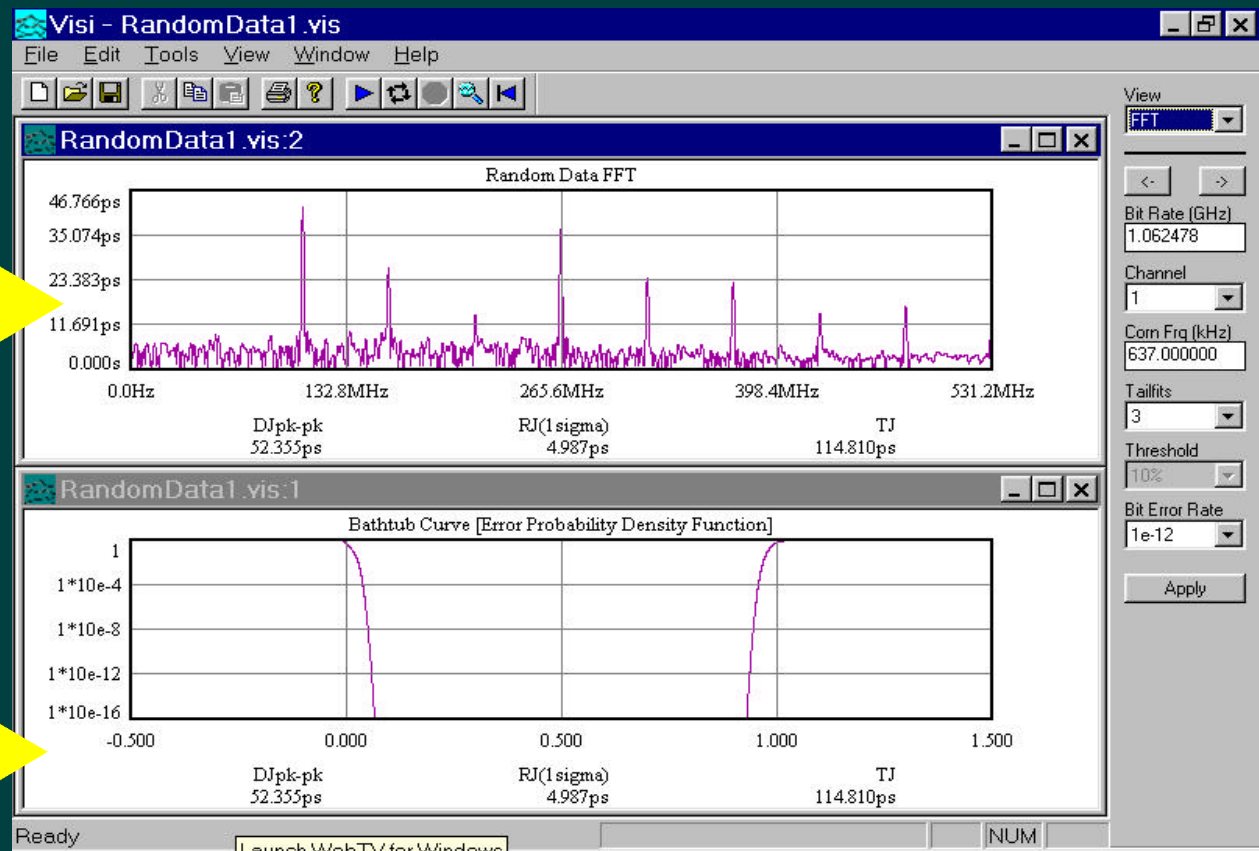


What about fully live networks?

Using Wavecrest's Random data tool, you can look at completely random, not repeating data streams on both optical and electrical interfaces.

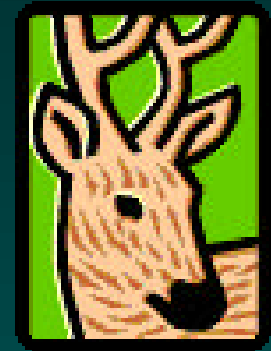
Frequency component breakdown for thorough PJ investigation!

Jitter Component Convolution for accurate Bit Error Probability Plot on Random data. An industry first!



SAN interoperability made easier

- Making systems and components work together is never easy.
 - Wavecrest has now made it easier.
 - Anyway, That is why they pay you the big bucks



- Wavecrest tools make it easier for you to diagnose your timing problems.
 - Debug timing issues on live networks as easy as hooking up a protocol analyzer.



***Wavecrest, building better SAN tools.
(Or, every engineer wants a Wavecrest
in their SAN box.)***

