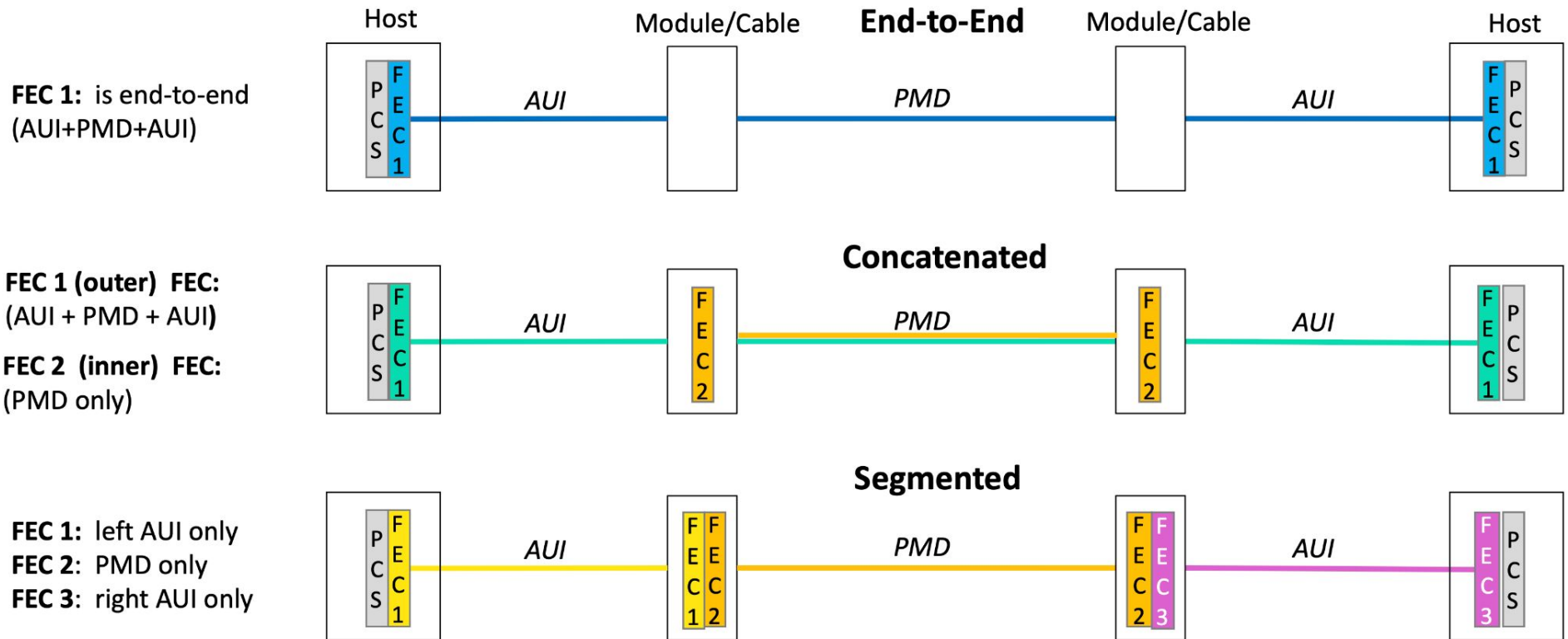


# FEC Striping across Optical Lanes

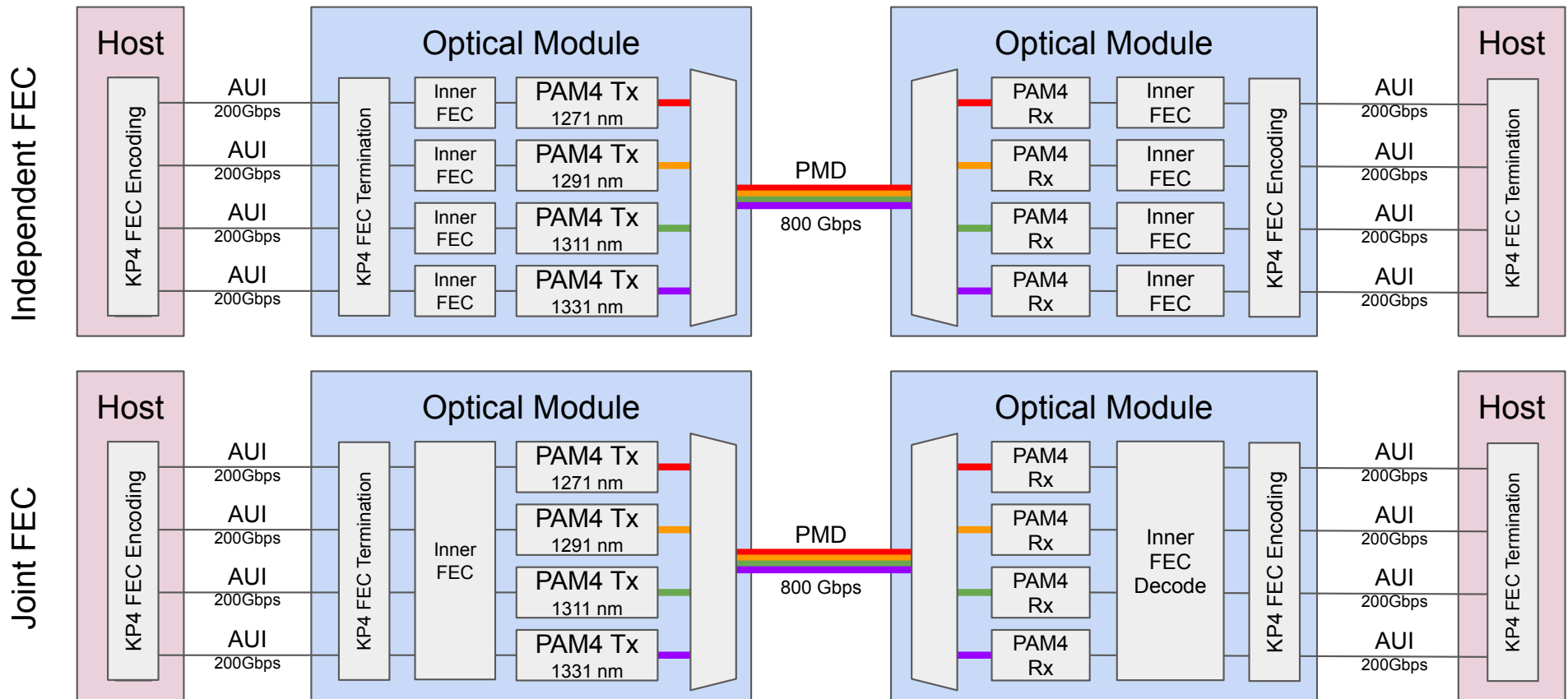
Jeff Rahn  
Meta

# Background: Nicholl, "FEC architectures for 800GE"

[https://iee802.org/3/df/public/22\\_02/shrikhande\\_3df\\_01a\\_220203.pdf](https://iee802.org/3/df/public/22_02/shrikhande_3df_01a_220203.pdf)



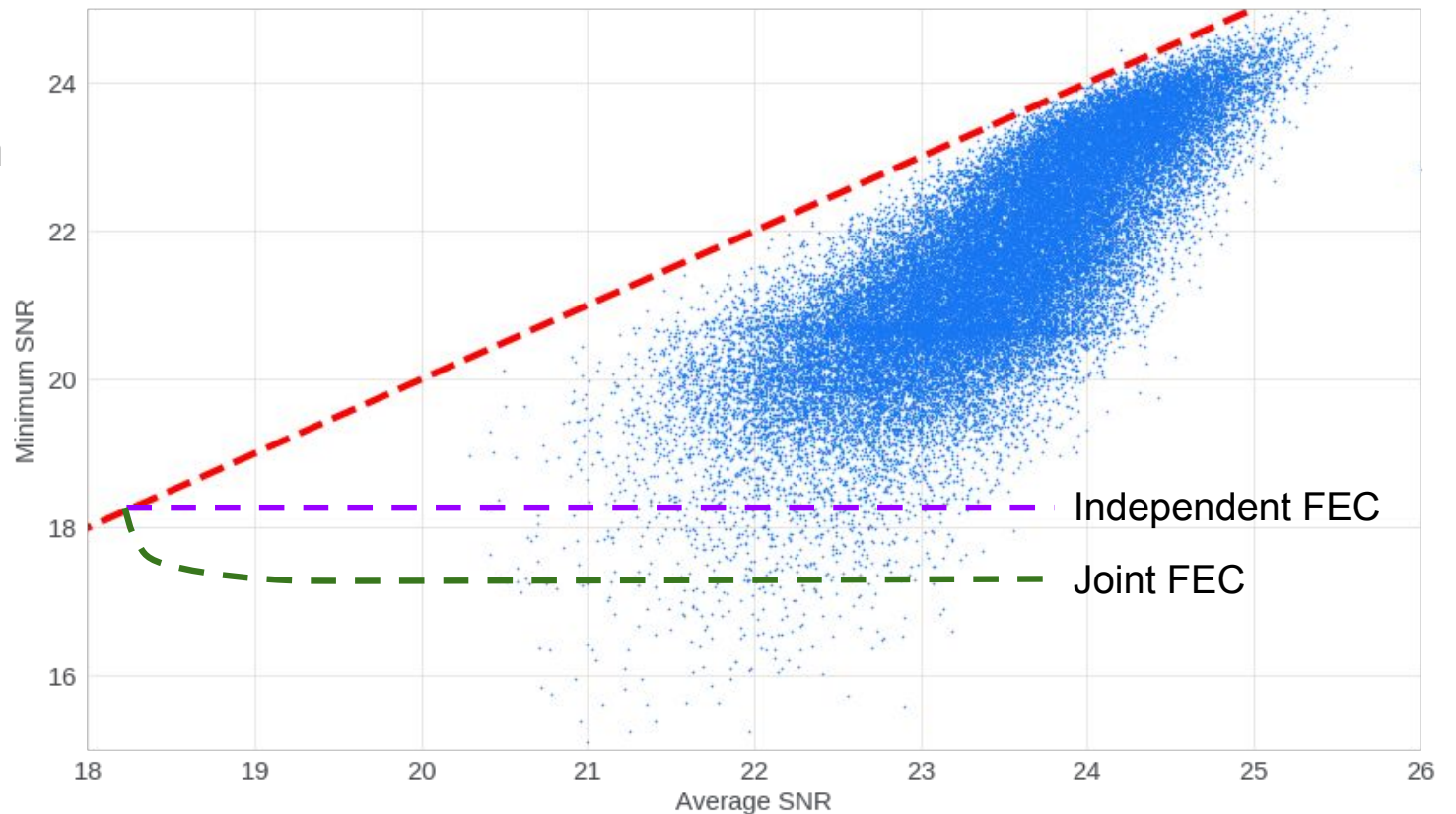
# FEC Striping: 800G-FR4 segmented example



# SNR distributions of deployed 200G-FR4 modules

Read out 4 SNR values from each 200G-FR4 module (some operating in 100G mode)

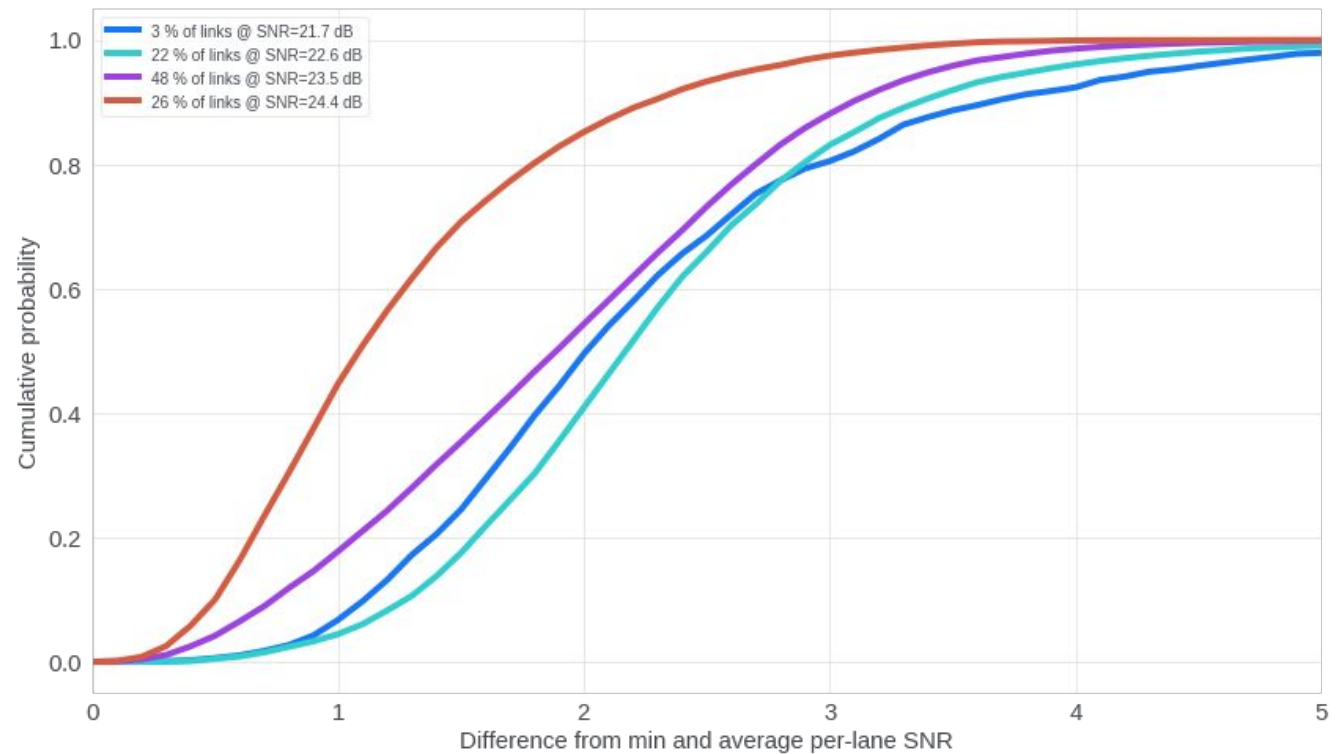
One point for each plotted at right: Min, Average



# Mine field data for SNR distributions

A typical stressed link has a 2-dB gap between the worst and the average lane SNR

Cost/benefit should be applied to FEC design



## FEC striping benefits

Significant improvement in link performance due to averaging of error rates across lanes

Potential benefit to managing uncorrected codewords via interleaving across lanes

Potential to manage burst errors in one optical lane

Reduced latency due to larger inner codeword throughput

Better tolerance of wavelength dependent impairments

Chromatic dispersion, PMD, FWM

Note: Can be difficult to map these benefits into spec relaxation

⇒ Please retain this feature for 800G PMDs