EFM OAM
Coding Violation Counters

Ben Brown – AMCC

Coding Violation Counters

- **1000BASE-X**

  Define a new 8B/10B coding violation counter that increments for all INVALID code-groups based on the running disparity rules and Tables 36-1 & 36-2

  16-bit counter supports a BER of 5×10^{-4} without reaching a max value in 1 sec – $65535 / (125 \times 10^6) = 5.24 \times 10^{-4}$ – granularity is 10 bits

- **100BASE-X**

  Define a new 4B/5B coding violation counter that increments for all INVALID code-groups, other than /H/, as defined in Table 24-1

  16-bit counter supports a BER of 2.6×10^{-3} without reaching a max value in 1 sec – $65535 / (25 \times 10^6) = 2.62 \times 10^{-3}$ – granularity is 5 bits

Applications

- **Access counters directly**

  Used by upper layer applications and directed tests

  X BER for Y time requires Z counter bits (see previous slide)

- **Provide thresholds & alarms**

  Eliminates polling by upper layer applications

  Ideal to detect

  Errored Seconds (ES – a second with >= 1 violation)

  Severely Errored Seconds (SES – a second with >= X violations)

  Even better to track these over many seconds

  Alarm after Y Errored Seconds or Z Severely Errored Seconds

What gets spec'ed?

- **The dilemma is how much to standardize**

- **Need to add the 2 counters but how wide?**

- **Add a threshold to look for SES?**

- **Add an ES & SES alarms?**

- **Add counters to count ES & SES?**

- **Add ES & SES counter thresholds to generate alarms?**

Recommendation

- **In D1.1, only add Coding Violation Counters**

- **Request comments and associated presentations to add supporting logic**