



Evaluating the Performance of DVB-S2 Over Asymmetric Heterogeneous Optical to Radio Frequency Satellite Links Using the LLGrid

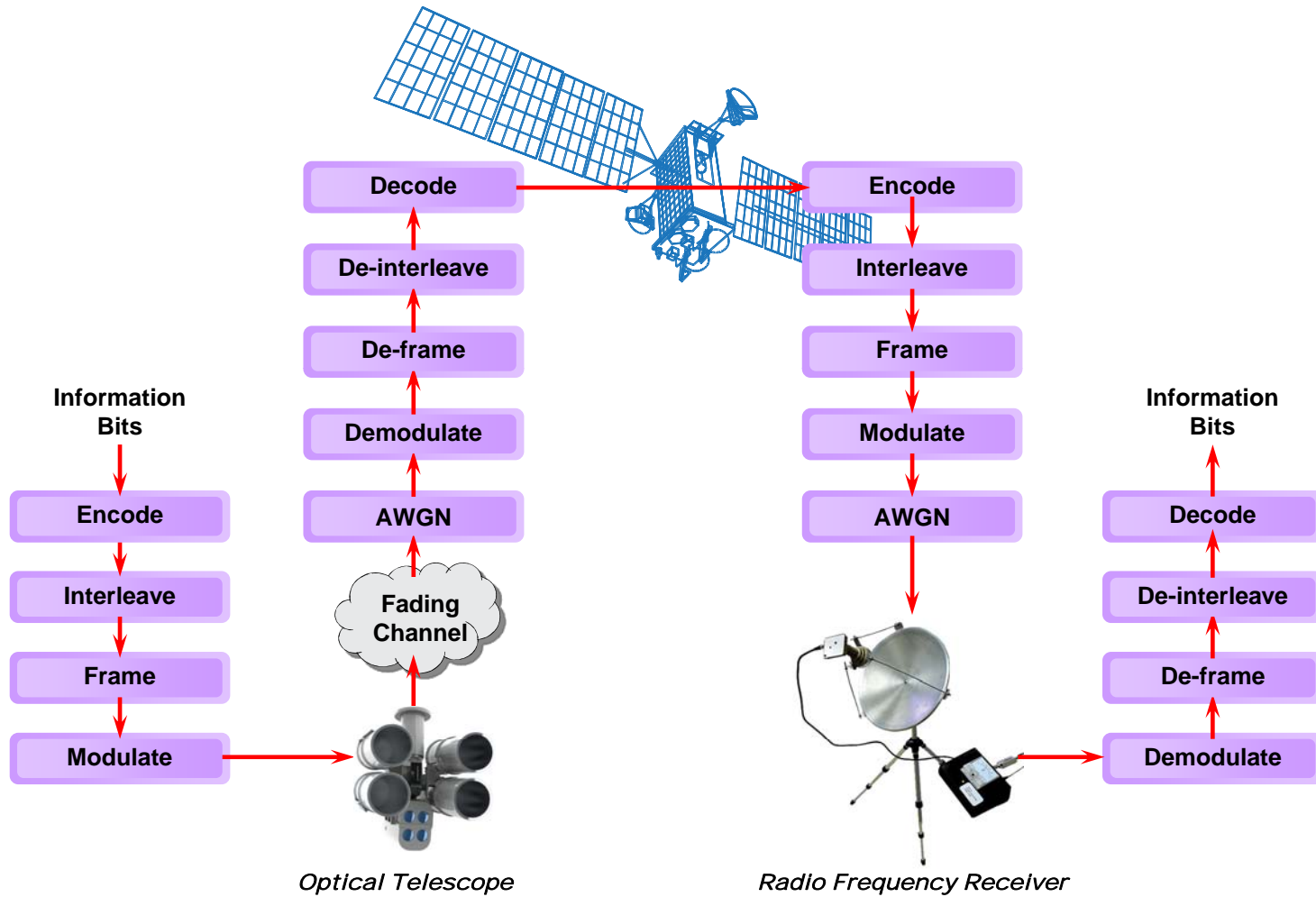
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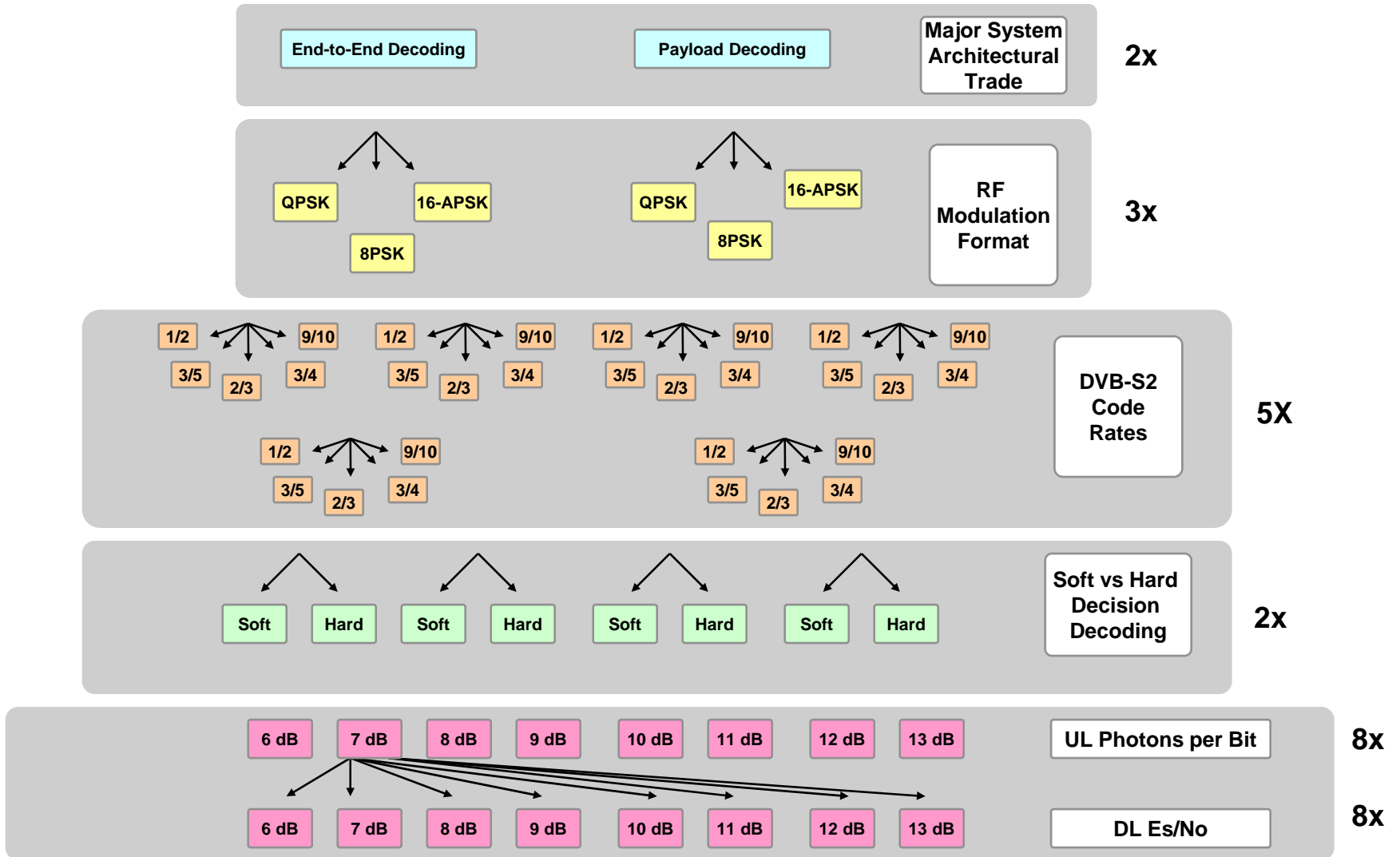
System Model



Heterogeneous Optical / RF Satellite Communications System



System Parameter Space

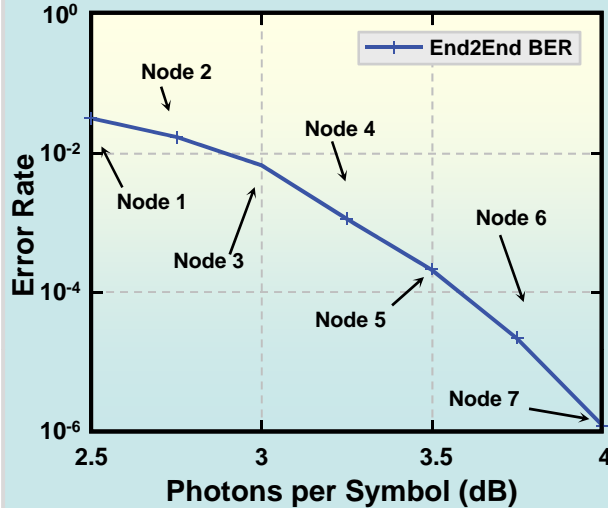


$2 \times 3 \times 5 \times 2 \times 8 \times 8 = 3840$ Simulation Data Points to Run!



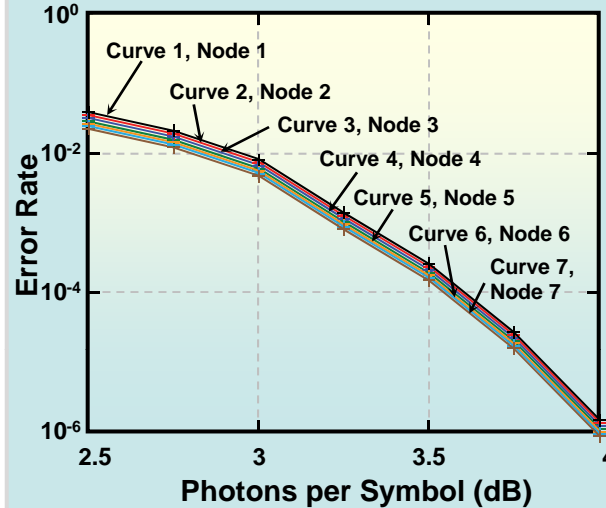
Computational Approaches Using LLGrid

Good



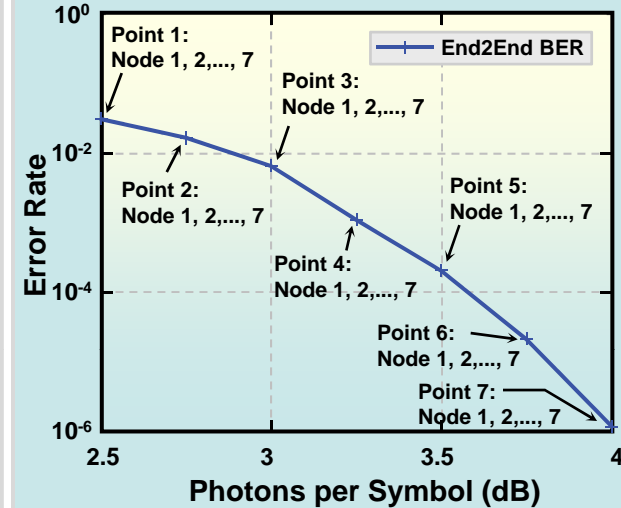
- Approach: Pass each data point to a separate node
- Short-coming: Some data points will run faster than others. When node finishes data point, it is idle

Better



- Approach: Have each node compute a fixed fraction of each data point
- Short-coming: Some nodes inevitably run faster than others and will sit idle while slower nodes are finishing

Best



- Approach: Have each node tackle each data point until the data point is complete
- Overcomes shortcomings: Slow nodes do not slow down overall simulation, and nodes do not sit idle
- SmartGrid code manages overall simulation