

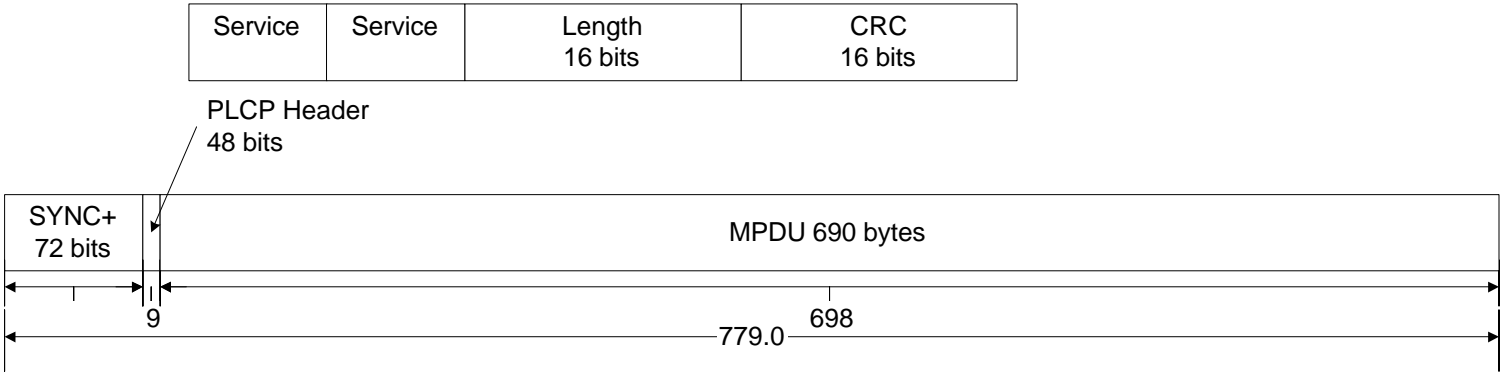
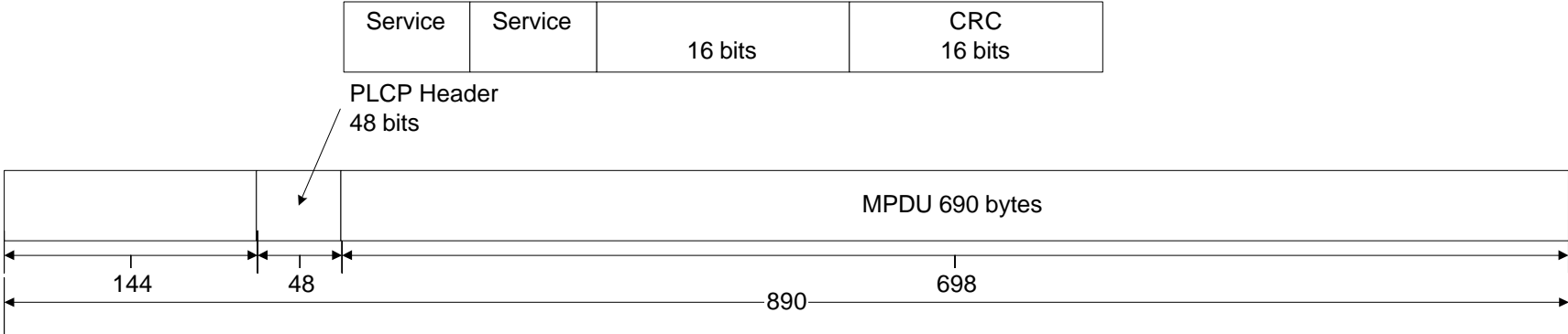
Throughput Comparisons for Various Preamble Modes

Kent Rollins
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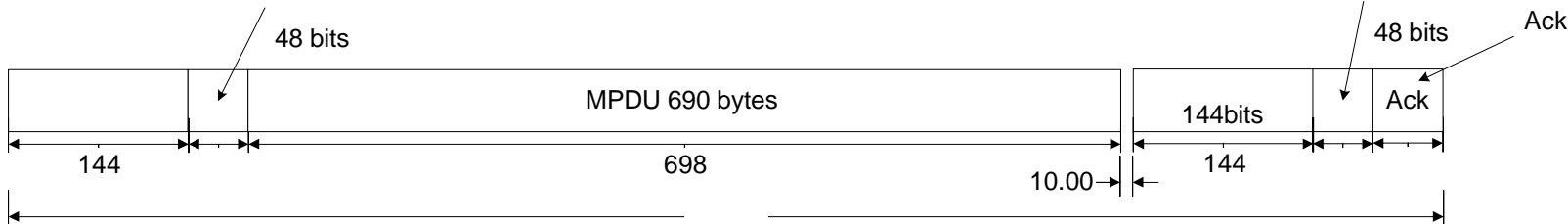
Throughput Comparisons

- High Speed extension provides three options for preamble and header
 - Compatible “Long” preamble and header
 - Short Preamble and Header with 5.5 or 11 Mbps data packets
 - FH Compatible Mode with FH preamble and header and DS short preamble and header with 5.5 or 11 Mbps data packets

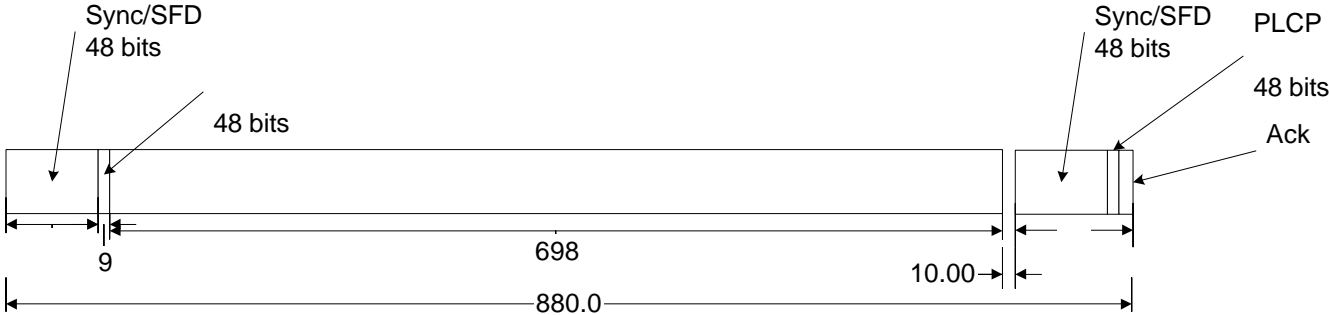
Frame Duration Comparison



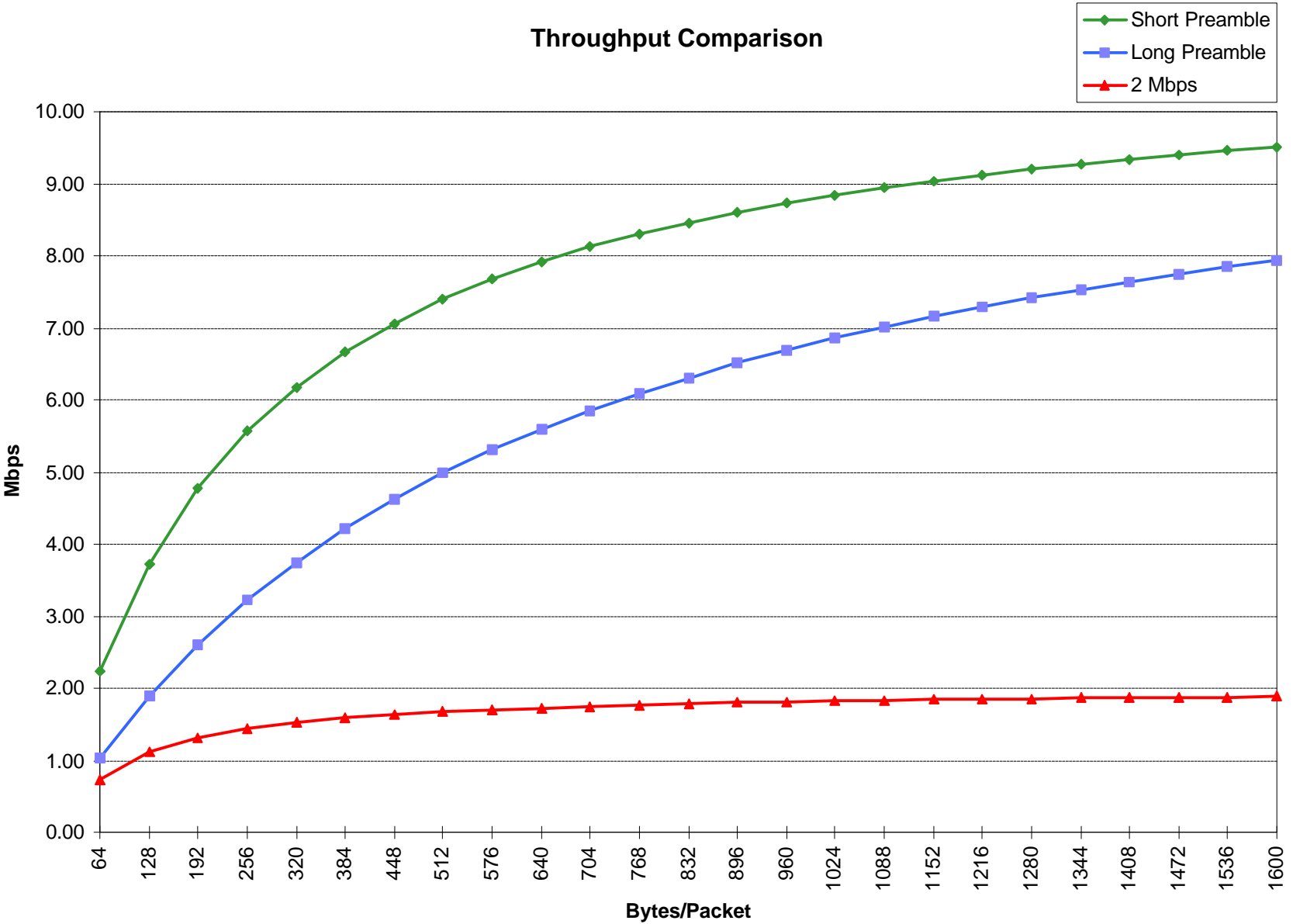
Simple Throughput Comparison



960 Bytes in 1148 microsec \Rightarrow 6.7 Mbps effective throughput



960 Bytes in 880 \Rightarrow 8.7 Mbps effective throughput

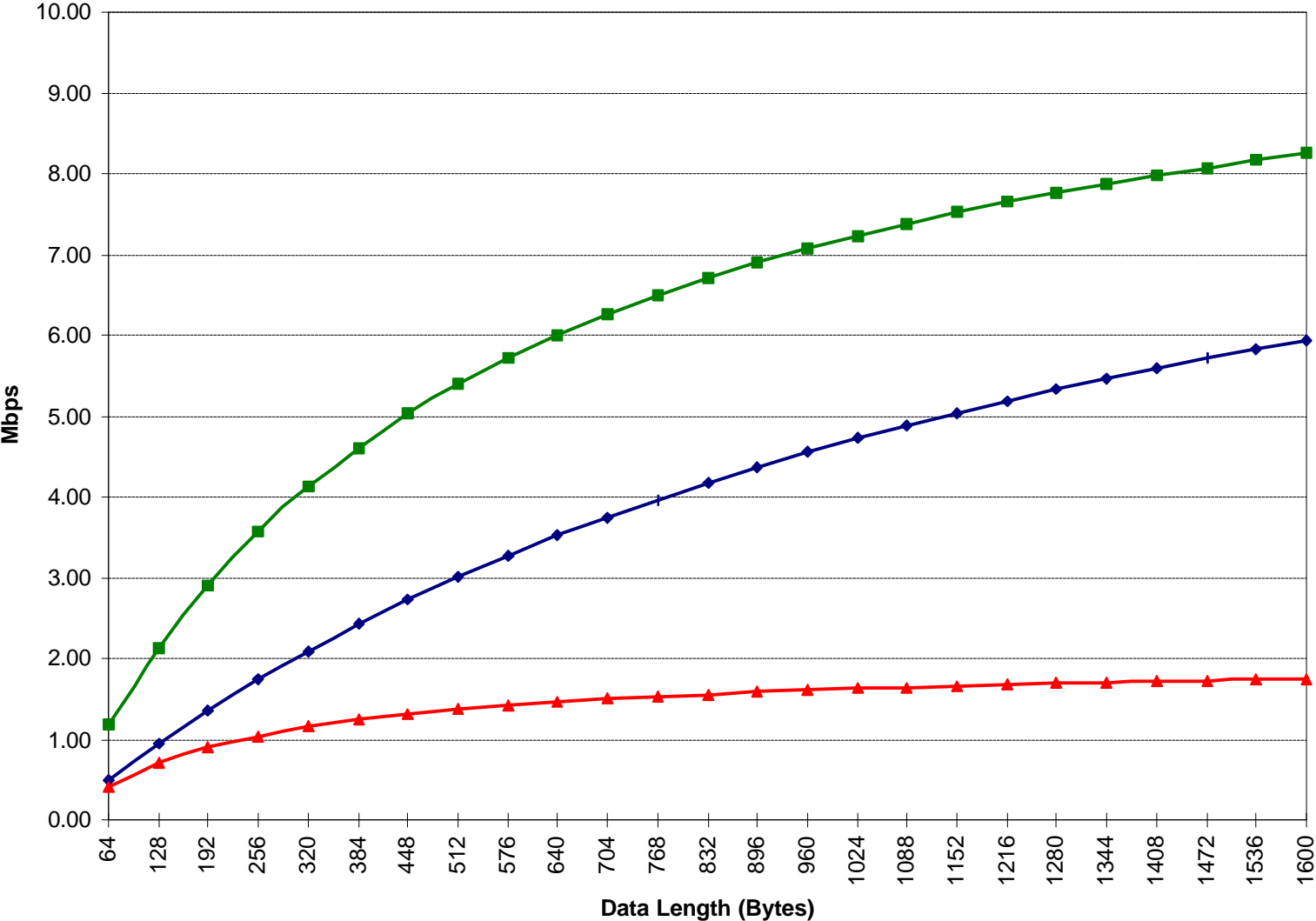


RTS CTS Effect on Throughput

- Long preamble has the advantage of utilizing the RTS/CTS mechanism to reduce collisions due to hidden nodes
- The extra transaction on each packet reduces the overall throughput

Effective Throughput with RTS/CTS

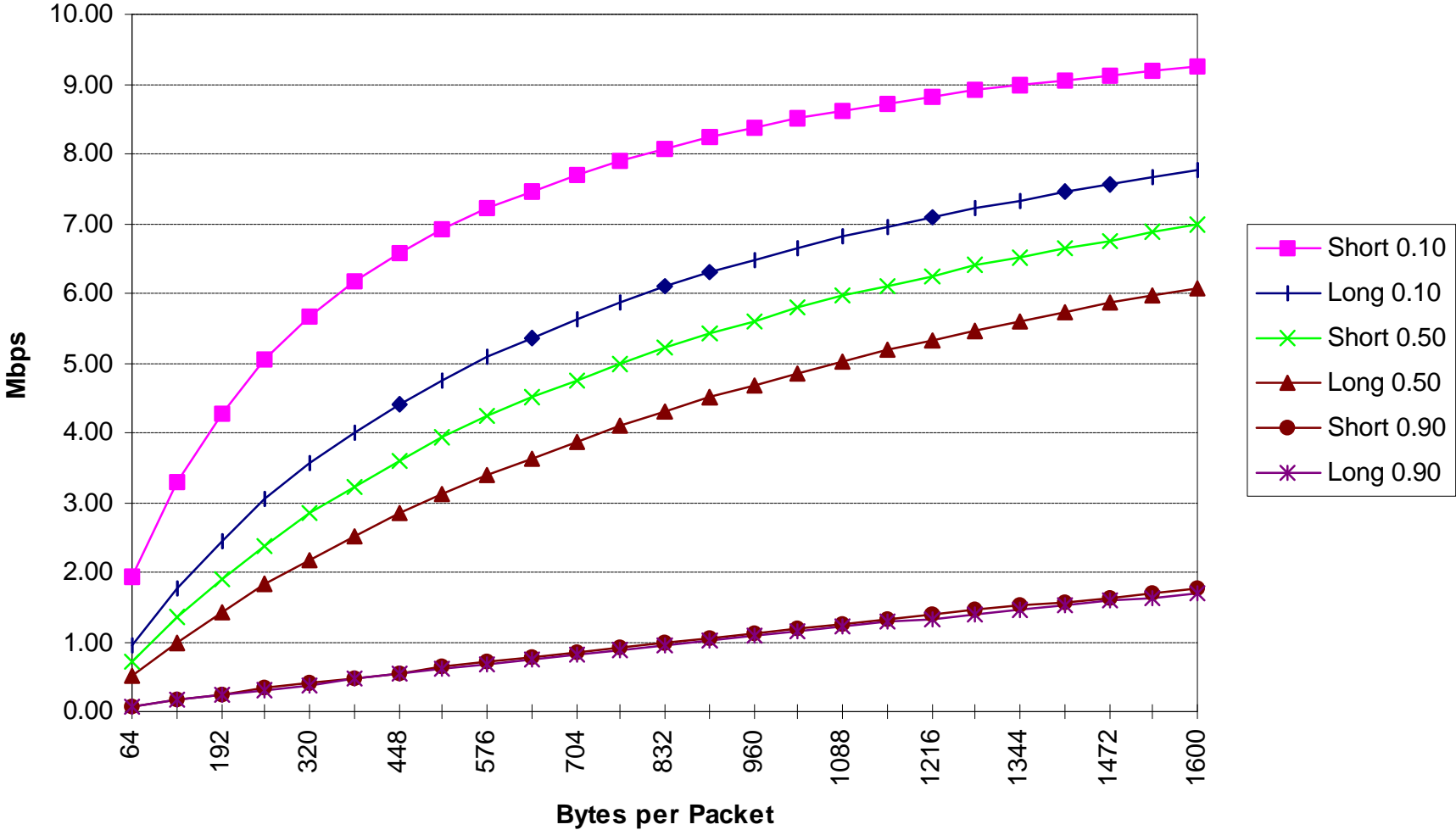
- Effective Data Rate Long Preamble Mbps
- Effective Data Rate Short Preamble Mbps
- Effective Data Rate 2 Mbps Mbps



Comparison with Loading

- Simulates the effect of back-off's on the throughput with short and long preamble
- Effect of preamble length is less with increasing load

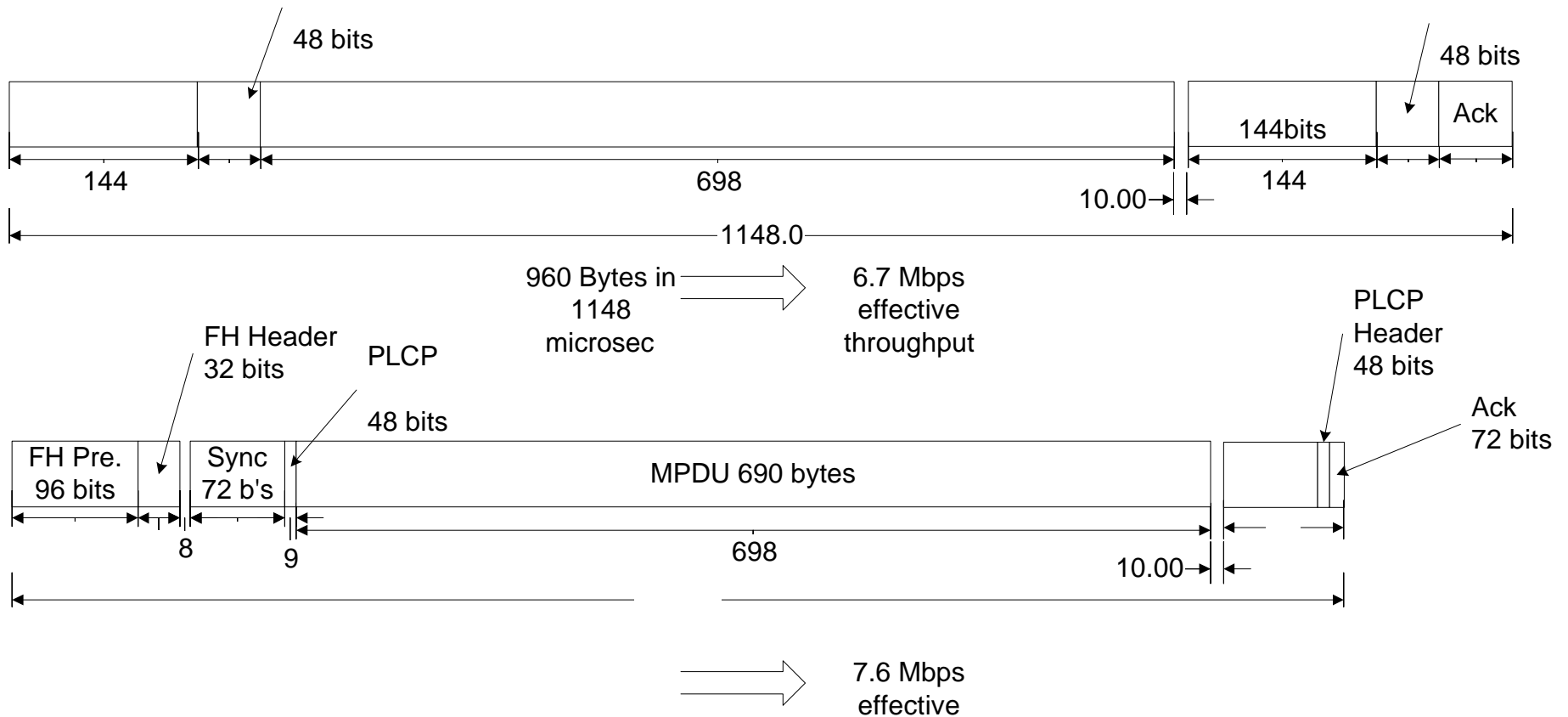
Comparison of Throughput with Loading



Throughput with FH Compatibility Mode

- FH compatible mode is defined in the standard
- Utilizes the FH preamble and header with the DS Short Preamble and high speed data packet
- Effective throughput is between that realized for the long and short preamble DS modes

Comparison: Long Preamble and FH Compatible Mode



Comparison of FH Interoperable Mode

