XKL®

Optical Networking

Light Your Network

Bandwidth Demands

- Ever-increasing bandwidth demand has become a major challenge and opportunity for growth within the networking market
- The number of Internet users has skyrocketed alongside application bandwidth intensity
- Internet of Things is projected to exponentially strain networks
- Spectral efficiency gains take time and are expensive
- A solution lies in increasing efficiencies on the transport equipment that allocate traffic via bandwidth management
- Statistical multiplexing is a strategic approach to maximizing bandwidth

Layer 1 Statistical Multiplexing

- Statistical multiplexing can greatly increase network performance at Layer 1

- Layer 2+ equipment has traditionally leveraged time-division multiplexing, a mechanism in which all packet flows — even the idle ones — fill up a channel, leading to channel inefficiencies

- By allocating bandwidth for channels with valid data packets, statistical multiplexing intelligently combines input traffic to maximize channel efficiency

Channel Utilization

- ## Typical Channel Utilization
  - Large number of idle frames
  - Idle capacity cannot be reclaimed
  - 15% to 50% line utilization is typical, leaving 50% to 85% of capacity unused

- ## Statistical Mux Solution
  - Intelligent way of combining customer traffic
  - Use 100% of capacity
  - Minimize idle frames – Fill the Pipe

100G Line Utilization using TDM

Client Data

Time Division Multiplexing
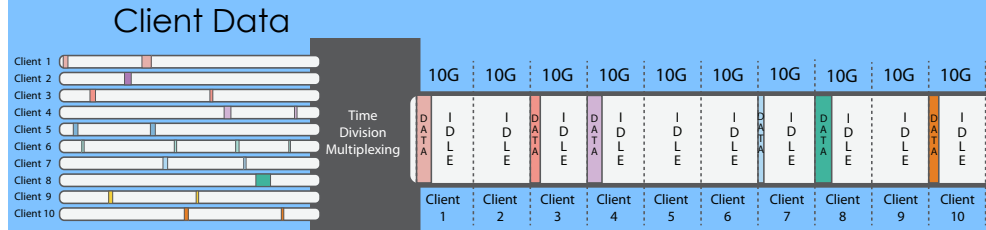
Inefficient Line Utilization

100G Line Utilization using Stat Mux

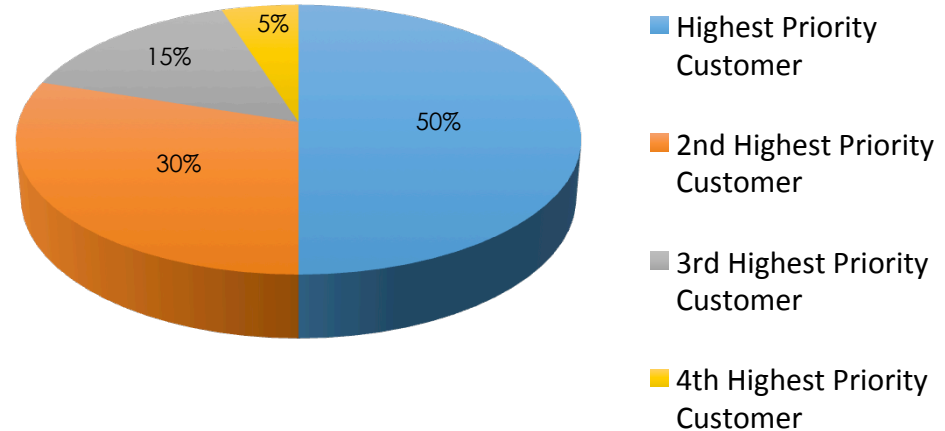Client Data

Statistical Multiplexing
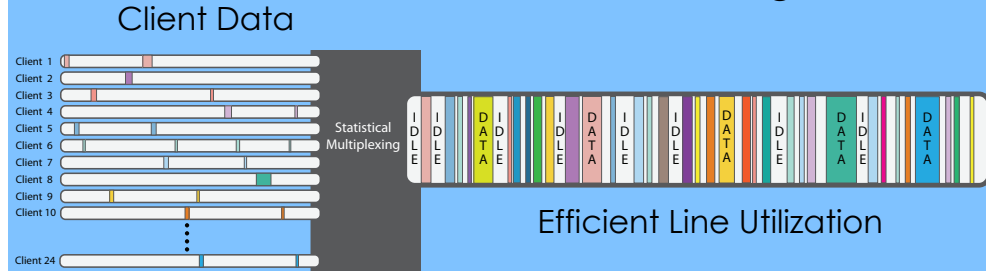
Efficient Line Utilization

More Client Data can be added

Bandwidth Management

- Quality of Service using client priority classification
- Maximize line efficiency, reducing Idle characters
- Deficit Weighted Round Robin scheduling
- Priority is soft-configured during provisioning
- Traffic counters and monitoring
- Analyze traffic patterns

Configurable Percentage of Usage

- Highest Priority Customer
- 2nd Highest Priority Customer
- 3rd Highest Priority Customer
- 4th Highest Priority Customer

50%
30%
15%
5%

Client Classification

- Increasing the priority level on a client port will allocate more bandwidth to it.
- Class Priority is soft-assigned
- Class 3 is the default setting for all ports and is the lowest priority
- Class 0 is the highest priority

Bandwidth Shaping

100%

75%

50%

25%

Contacts

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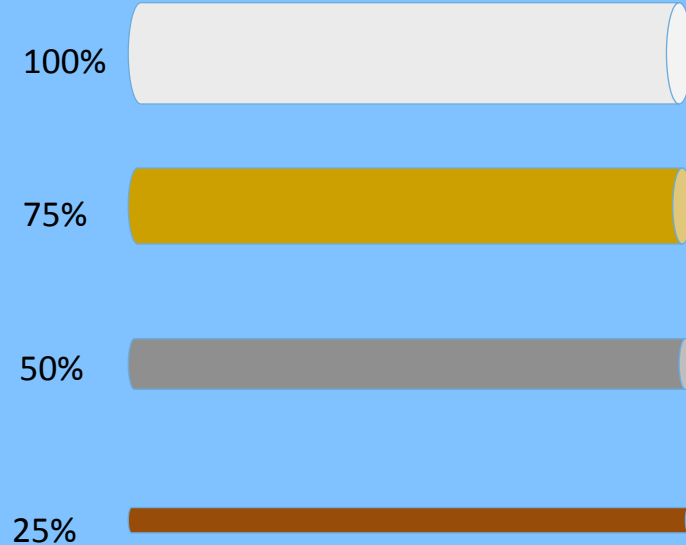
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