# Datacenter Network Capture: Choosing the right tools for the job

STAC Summit

New York, June 2019

# Data Center Network Capture

What's required for network capture at 10G/40G/100G?


- Reliable packet acquisition at line-rate
- Careful data layout for high-speed bulk writes
- Intelligent indexing for flexible searching/filtering
- **Fast I/O**

# Fast I/O and SSDs: Fast but Not Durable

- Excel at read-intensive workloads
- Not so much at writes (durability issues)
- Durability measures
  - PBW (petabyte writes) over lifetime - typically 5 years
  - DWPD – drive-writes per-day

*10Gb/s during business hours amounts to 39PB over 5 years*

*1 PBW is equivalent to ~51Mb/s sustained*

# Fast I/O: SSDs vs. Spinning Disks

**SSDs:**

Durability ranges from not rated to

- MLC: up to 0.5 PBW per TB (25Mb/s)
- Optane 3D: up to 110 PBW per TB (5.58 Gb/s)
- Eye-wateringly expensive in bulk

**Spinning disks:**

- Essentially unlimited durability
- Cheap and cheerful

**Either/or?**

# Corvil Innovations

## Deep buffering

- Line rate processing, accurate timestamping, never drop a packet
- Deep buffers – enable cost savings by sizing for sustained rates
- Example: 1 second peaks 5x 60 second average
- Buffer for 60 seconds – size capture and analytics for 60 second averages

## Turbo Capture

- Use SSDs cost effectively
- Turbo charge packet capture for 30-40 minutes during market open / close
- Use cost effective HDDs sized for long term sustained rates and historic storage

## Turbo Export

- Guaranteed capture export performance under peak load
- Divert live captures to SSDs to accelerate read I/O from HDDs during export
- Exports complete 3-5x times faster while ensuring no capture drops to the HDDs

# Corvil Network Capture

## Fast, Economical Packet Capture with Easy Analytics Upgrades

**Reliable, high performance packet capture as a flexible foundation for the future**


Optional modules in gray[2]

- Innovative software architecture leverages RAM and best of both classes of storage:
  - High durability of spinning disks
  - Burst capability to datacenter network rates with SSDs
- Extensible foundation for full-stack visibility and analytics

Thank you!