

K] h \ h \ Y · Y l d ` c g] c b ` c Z ` i b g h f i W h i f Y X ·
X U h U ` U b X ` Y l d c b Y b h] U ` h [f g k h ` a d e Z h z b h Y h c ·
g] n Y g ` U f Y ` Z c f a U h g ` W e a d U b U g g ` d e f H] U ` m ·
g] n Y g ` U f Y ` ` c c _] b [` Z c f ` k U m g ` b W ` g h c f Y Y U b X ·
a U b U [Y ` i b g h f i W h i f Y X h X U h U) #) \$ # % \$ \$; V # g ` h \ f b c x] c \ d d i b U g f Y e i] f Y X] h] c
g U W f] Z] W] b [` d Y f Z c f a U b W Y ` g i d d c f a l a l] H h d b Y K] g h f c k u g a v U g Y X ` g c i h] c
h \ Y ` W e g h ` m ` X c k b h] a Y ` i b g h f i W h i f Y X U b U g g ` U ` U h U b h U p Y a i g h ` \ c k ` F 8 A 5
] h g Y ` Z ` k \] ` Y ` k U] h] b W U Z e z i] b W f Y X] Y [m X ` U f U h Y b W m ` a i g h ` V Y
d c c ` g ` c Z ` X U h U ` h c ` V Y z h f U b e Z Y f Y X ` a Y a c f m ` h \ f c i [\ ` h \ Y ` ·
8 Y a U b X ` Z c d f Y f Z] c f a U f b W Y 7 D U b X ` 9 h \ Y f b Y h ` H 7 D # = D ` g h U W _ g ` ·
V ` Y Y X] b [` Y X [Y ` h Y W \ b c b c f m X] W Y g b g h \ b] Z] W U b h ` c j Y f \ Y U X " ·
f] 5 Y " ` U ` f Y g i ` h z ` b Y k ` a Y h \ c X g ` \ U j Y ` F Y a c h Y ` 8] f Y W h ` A Y a c f m ` ·
V Y Y b ` X Y j Y ` c d Y X ` h c ` h K \ j ` 9 h U Y f U h Y b W m ` Y Z Z Y M A 5 U g] g f U j Z Y U h h f Y ` X
V U b X k] X h \ ` V Y m c b X ` k \ U h h \ g % d c g s] U b X ` c b ; V 9 b H V W Y b a Y a Y m f m c X U h U ` ·
k c f _ Z ` c k g ` k] h \ h \ f c a e g d i h g Y f g ` k Y f Y ` g h] h f U b U g Z Y f g c ` U W \ U g Y h \ Y
f Y e i] f Y a Y b h g ` h \ U h ` Y Y W Y X \ W h f f Y b h \ H 7 D j Y U] H 7 D U h j b b ` h \ Y `] b h Y f
h f U b g d c f h ` h Y W \ b c ` c [h Y g i k l h h \ Y m # k Y f Y ` g U W h] Z] W] b [` h U Y Y b W m ` h c ` ·
;] [U V] h ` 9 h \ Y f b Y h ` f l ; j V 9 U " c j Y f \ Y U X ` h \ Y f Y ` k Y f W h X b W b Y U g Y g ` ` U h Y b
U X ^ i g h a Y b h g ` h \ U h ` W e f Y g i V h z a U X W f H U g Y g ` h \ f
5 H H C ` U b X ` 8 Y ` ` ` \ U j Y ` k e f a Y X ` h y j] U h 5 H H C ` Z n f Y Y b \ Y U X " h \ Y ` 7 D I ` h c
h c ` V f] b [` h \] g ` ^ c] b h U g X ` s b] c b d h e] Y h \ Y f m h U g f l g Y X h c [Y h \ Y f ` ·
Z Y U h i f] b [` g i d d c f h ` Z c f W W Y g g Z i b Y k ` m ` h c ` ·
a Y h \ c X g `] b W i X] b [` g W d d c f h ` c ` ·
8] f Y W h ` A Y a c f m ` 5 W W Y g g Y h F 8 A 5 h
U X j U b W Y X ` d f c h c W e ` g ` d f e Z] B y G
F 8 A 5 z ` b Y l h ` [Y b Y f U h] c h] B f n Y X
h Y W \ b c ` c [m ` k] h \ G A 5 F H b f Z ` f
5 H H C ` ` * \$ ` H i b] b [z ` A c b h c f a] h Y
5 b U ` m h] W g ` g c Z h k U f Y ` % \$ # (\$; v e
h i b] b [` d f c Z] ` Y ` Z c f ` W e b b Y W g f
U i h c a U h] W U ` ` m ` V f] b [g Y h h \ U Y ` ·
g] a d ` Y l k e g V g a m U b b K f " ` c Z ` 9 h \ = Y f
5 H H C ` U b X ` 8 Y ` ` ` W i g h c p a Y d g f W U b
U X j U b h U [Y c Z c Y f g h 9 h Y Y f b Y h ` h \]
g h U b X U f X g `] b W i X] b [j ; & U V) Y # c
9 h \ Y f b Y h ` f l ; V 9 L " c d Y f U h] b
g m g h Y a g ` ·
b c h ` g i d d c f h ` F 8 A 5 ` `] _ Y ` a U W C G " ` ` ·

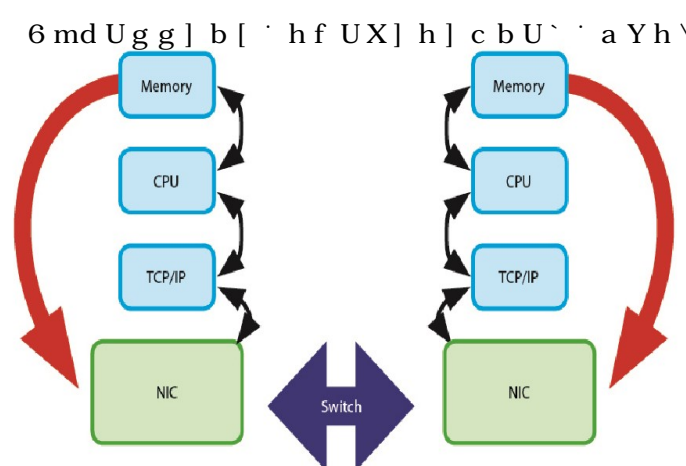


Figure 1 (Red = RDMA transfer; black = TCP transfer)



Maximize Ethernet Bandwidth on Dell OneFS Storage with ATTO Performance Ethernet™ using NFS over RDMA

TECHNICAL FEATURES

- FastFrame SmartNIC Ethernet Adapters (10/25/40/50/100GbE)
- ATTO 360™ Networking software
- Several custom tuning profiles for Dell OneFS storage optimized for SMB, NFS, or NFS over RDMA₁
- RDMA over Converged Ethernet (RoCE) enables industry-leading low-latency (1us MPI ping latency) and decreases CPU utilization
- Driver support for Windows®, Linux® and Mac® operating systems
- TCP/UDP/IP hardware-based stateless offloads
- Guaranteed bandwidth and low-latency services
- Energy Efficient Ethernet enables lowest power draw on the market for a SmartNIC
- Hardware-based I/O virtualization

₁ No RDMA support for MacOS at the time of this publication



WHAT CAN I EXPECT FROM THIS JOIN SOLUTION?

ATTO FastFrame™ Performance Ethernet™ come with free support for ATTO 360 Networking software. This software not only has sophisticated analytics & monitoring capabilities allowing users to troubleshoot with pinpoint accuracy but have custom configurations for Dell OneFS storage systems. These tuning profiles are designed to optimize your connection to Dell storage and increase throughput significantly. ATTO engineers have developed and fine tuned these profiles over a number of years and users can expect a performance benefit up to 30% on TCP transfers and virtually eliminating overhead on RDMA producing near line-rate speeds.

RDMA SIMPLIFIED WITH ATTO 360, OPTIMIZED FOR DELL ONEFS

ATTO Technology Inc. single- and dual-port 10/25/40/50/100GbE Smart network interface cards (NICs) feature industry-leading latency management using RDMA. With ATTO 360, Dell OneFS users can connect to their storage with a simple easy-to-use custom tuning profile that ensures they are getting the most out of their connection. Users can expect lightning fast throughput while behind the scenes ATTO 360 is implementing their NFS over RDMA connection, making sure the Smart Offloads inside our FastFrame silicon is enabled and other parameters are configured based on countless hours of testing and validation done by ATTO and Dell engineering.

