

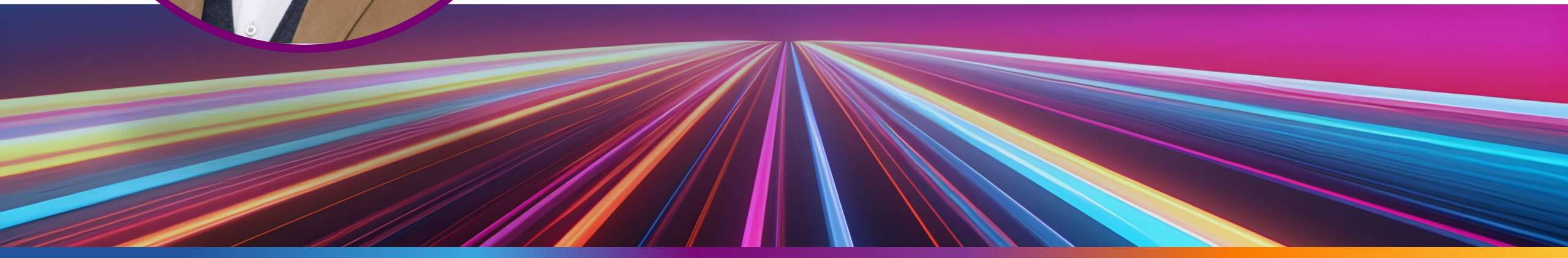
# 09:15–9:35 | What Bob Dylan Can Teach Us About Cloud Networking



**DAVE SHACOCHIS**

VP Connectivity Fabric Services

**LUMEN<sup>®</sup>**





HE DEFIED EVERYONE  
TO CHANGE EVERYTHING.

A FILM BY JAMES MANGOLD  
**A COMPLETE  
UNKNOWN**

TIMOTHÉE CHALAMET  
as BOB DYLAN  
EDWARD NORTON  
ELLE FANNING  
MONICA BARBARO  
BOYD HOLBROOK

SCREENPLAY BY DIRECTED BY  
JAMES MANGOLD AND JAY COCKS JAMES MANGOLD

SEARCHLIGHT PICTURES  
ONLY IN THEATERS  
DECEMBER 25

NEW YORK TIMES BESTSELLER

**DYLAN**  
Goes Electric!

Newport, Seeger, Dylan, and the Night That Split the Sixties

ELIJAH WALD











**So, what can Bob Dylan teach us  
about cloud networking?**











"...meet me in the morning

... 56 and Wabasha..."



A man with dark, curly hair is seated, playing an acoustic guitar and a harmonica. He is wearing a dark jacket over a dark shirt. The scene is dimly lit, with a warm, yellow light source visible in the background, creating a moody atmosphere. The guitar is a light-colored acoustic model. The harmonica is held in his mouth, and his hands are positioned on the guitar's strings and fretboard.

"...clouds so swift..."

"...gate won't close..."

"...you ain't goin'  
nowhere..."





"...and you say, 'what does this mean?'... and he screams back you're a cow, give me some milk else go

"...you hand in your ticket, and you go watch the geek..."

"...and you know something is happening here... but you don't know

# From FOLK to FIBER





# 20<sup>th</sup> Century Icon - Dylan Goes Electric



- Newport Folk Festival, July 25, 1965
- Booed by folk fans for using electric guitar
- Folk Rock is born: Rock music + poetic folk lyrics
- Dylan's career finds a new level post Newport

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# 21<sup>st</sup> Century Institution – Telecom Goes Cloud-Centric



- From hardware-centric to cloud-centric
- Replacing physical switches/routers with software enablers (NFV, SDN)
- Offering Network as a Service (NaaS), on-demand connectivity

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# Backlash vs. Breakthroughs



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# Dylan's Legacy - Inspiring Musical Genres



- Singer-Songwriters: personal, poetic music (in Dylan's mold)
- Punk's Attitude: raw authenticity, rebellion
- Hip-Hop's Lyricism: wordplay & social commentary
- Folk Rock & Beyond: genre-blending became normal



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# New Genres - Dylan Reinvention



- Country Music period: "Nashville Skyline"
- Born-Again Gospel period: "Saved" & "Slow Train Coming"
- Super-Group period: "The Traveling Wilburys"
- Soundtrack period: "Pat Garrett & Billy The Kid"



# New Topology - Cloud Reinvention



- **Cloud 1.0:** built on infrastructure designed for telco-to-telco interconnect from 50+ years ago...
- **Cloud 2.0:** a range of new space/power/water optimized facilities springing up in new fiber corridors

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# AI Strategy needs Network Strategy

**Data Centers**

**\$2T**

**AI Factories**

**AI Chips**

**\$4T**

**Compute  
Infrastructure**

**Power and  
Transmission**

**\$0.5T**

**Power &  
Transmission**

**Network  
Infrastructure**

**\$0.5T**

**Strategic  
Adjacencies**

# Physical



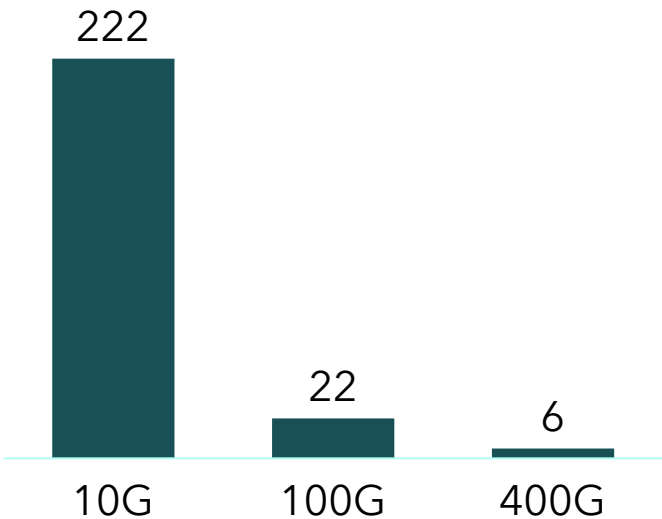


# Bandwidth is essential for efficient enterprise AI

At petabyte/exabyte scale, the network sets training time and cost

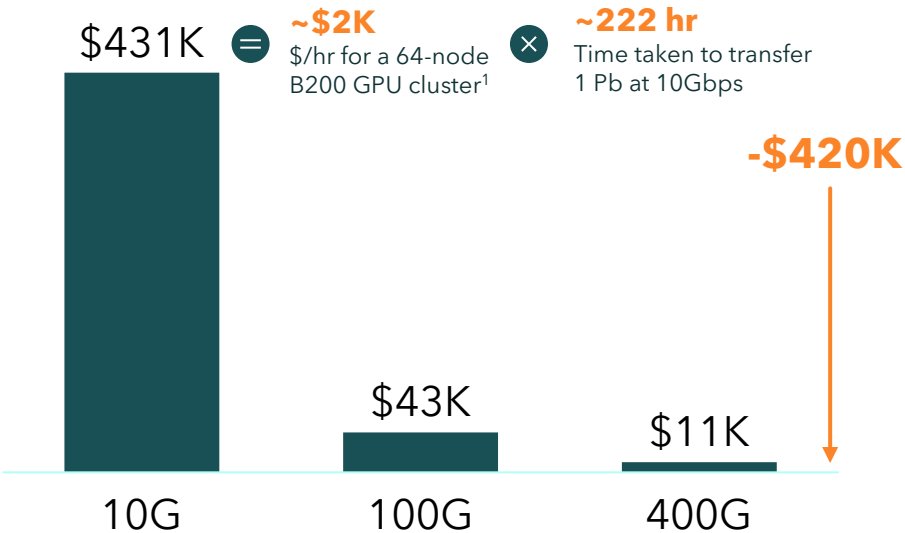
Enterprise network bandwidth has a significant impact on AI training cost

Hours to egress 1 PB of training data



Transferring 1 petabyte of data for training can reduce cost by **~40x** with 400G vs. 10G

Enterprise Cost before training can start (\$K)



Cloud 2.0 requires enterprise networks built for exabyte-sized moves

400G+ is a starting point and the need for 800/1.6T is obvious.

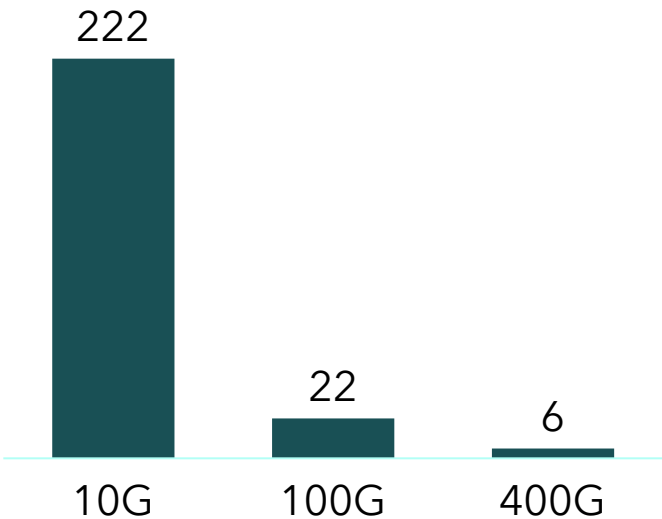
Source: Multi-source data prepared by 4MC Partners for Lumen analysis, RBC 2025 AI Market Analysis

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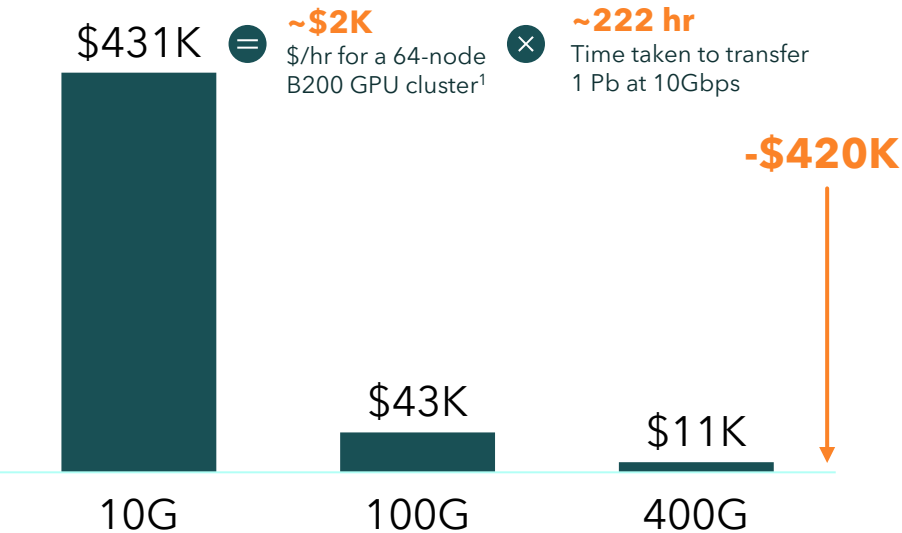
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**Digital**

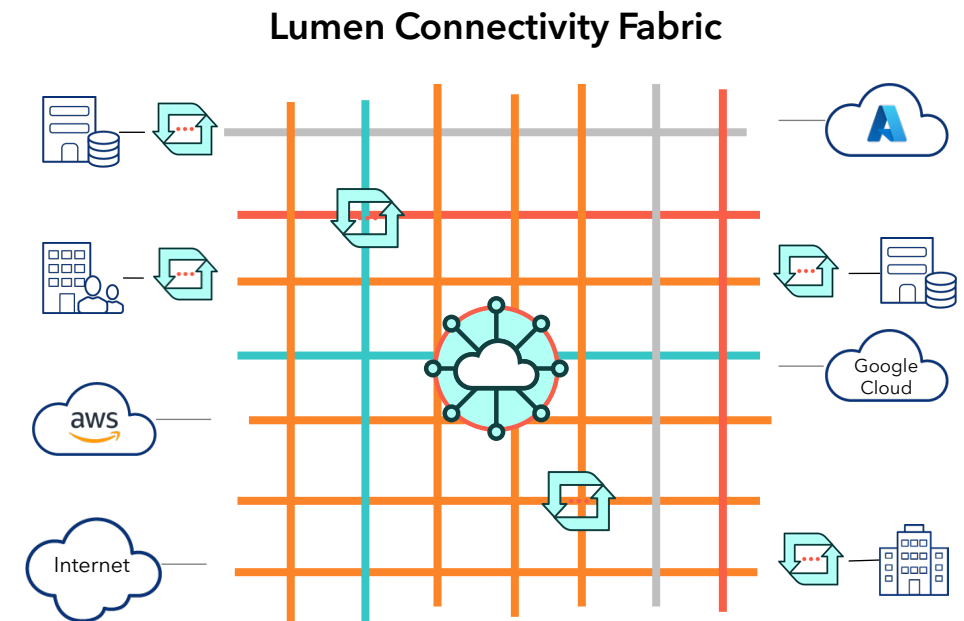


# Lumen® Connectivity Fabric<sup>SM</sup> - Modernization

## High-Capacity Fabric to Support Data Center, Cloud and Premise based solutions

Providing customers a secure and dynamic, API-programmable Ethernet Fabric that seamlessly interconnects enterprise locations, public and private data centers, cloud providers, edge computing resources, SaaS applications and strategic partner ecosystems.

- Fabric Ports: Universal Port
  - Customer facing 1/10/100/400G ports 
  - Entry, exit and interconnection points on the Lumen Connectivity Fabric
- Fabric Connections: Layer 2 Services
  - EVPL, EPL, EVP-LAN, EP-LAN
  - Threads for weaving Fabric Ports, Public Clouds and Fabric Services together across the Lumen Connectivity Fabric
- Fabric Services: Value Add Services
  - Internet, MPLS, Security, Managed, Compute
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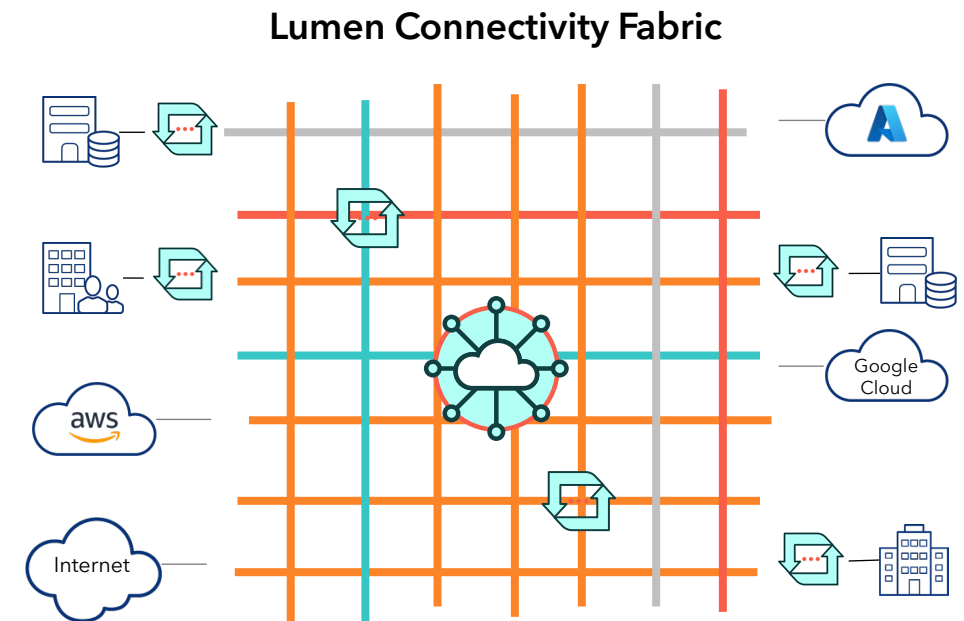


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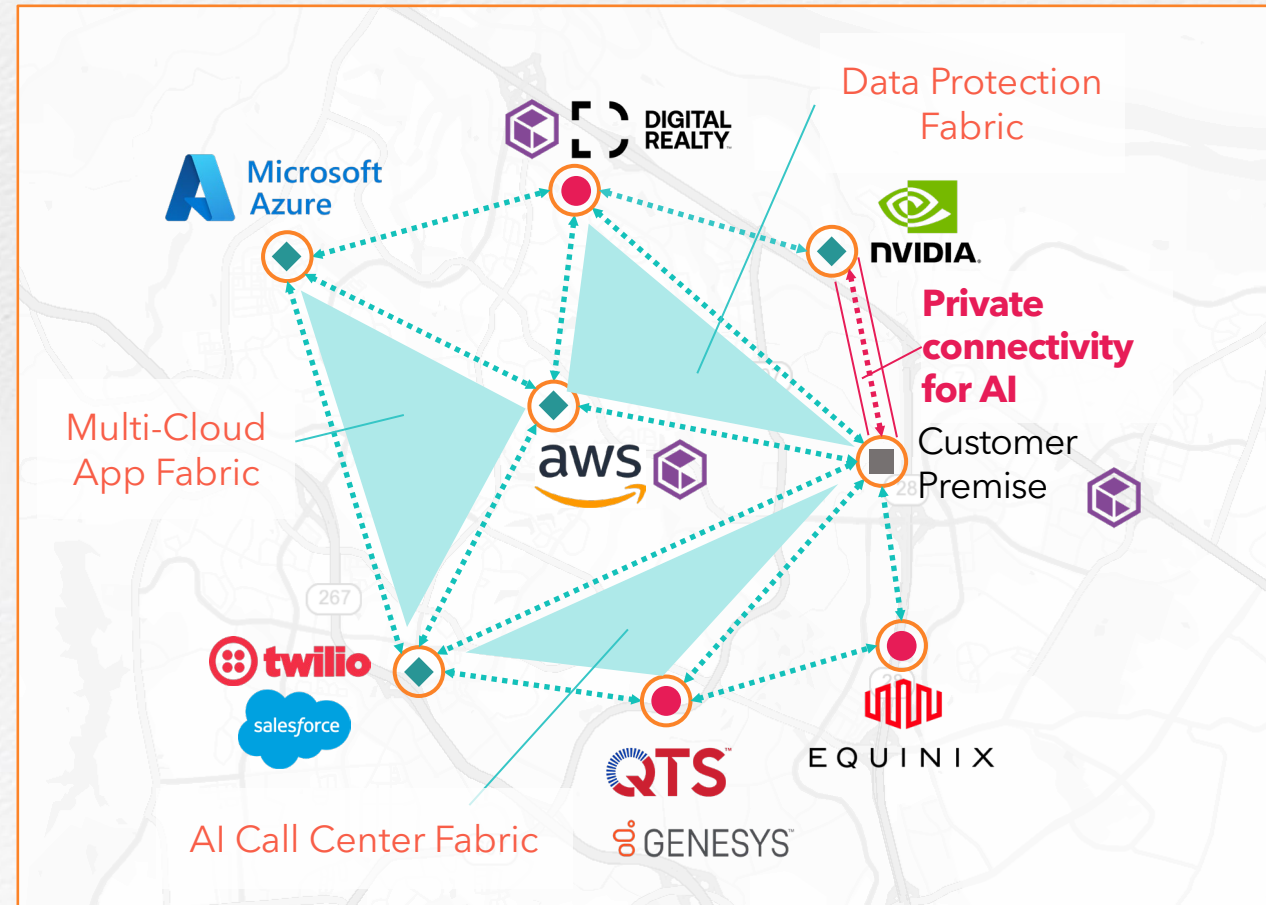


# Connected Ecosystem





Enterprises can **design and control** their cross-cloud connectivity without owning, managing and operating assets



*Illustrative, future state vision*

### Legend: Network components

- Data Center
- ◆ Hyperscaler
- Enterprise Premise
- Fabric port enabled
- Lumen Connectivity Fabric (400G+ enabled)
- Private AI connectivity
- Fabric

# Epilogue... Pete Seeger's Apology



Bob! Someone just told me  
that you too think I didn't like  
your "going electric" in 1965. I've  
denied that so many times - I was  
furious at the distorted sound - no one  
~~was~~ could understand the words of  
"Maggie's Farm" and dashed over to  
the people controlling the PA system  
"No this is the way they want it" - They said.  
I shouted, "If I had an axe I'd cut the  
cable" and I guess that is what got  
quoted. My big mistake was in not  
challenging from the stage the foolish  
few who booed. I shoulda said, "Howling  
Wolf goes electric, why can't Bob?"  
In any case, you keep on -

best Pete

Bob Dylan  
c/o Showcase Foundation  
P.O. Box 860  
Coopers Station  
NYC  
NY 10003



# Parallel Disruptions: Music & Tech

- **Dylan Disrupted Folk:**

- Physical – plugging in his guitar
- Digital – (eventually) got the mix right
- Ecosystem – legacy of inspiration and agility

- **Telecom Primed for Disruption:**

- Physical – topology of “Cloud 2.0”
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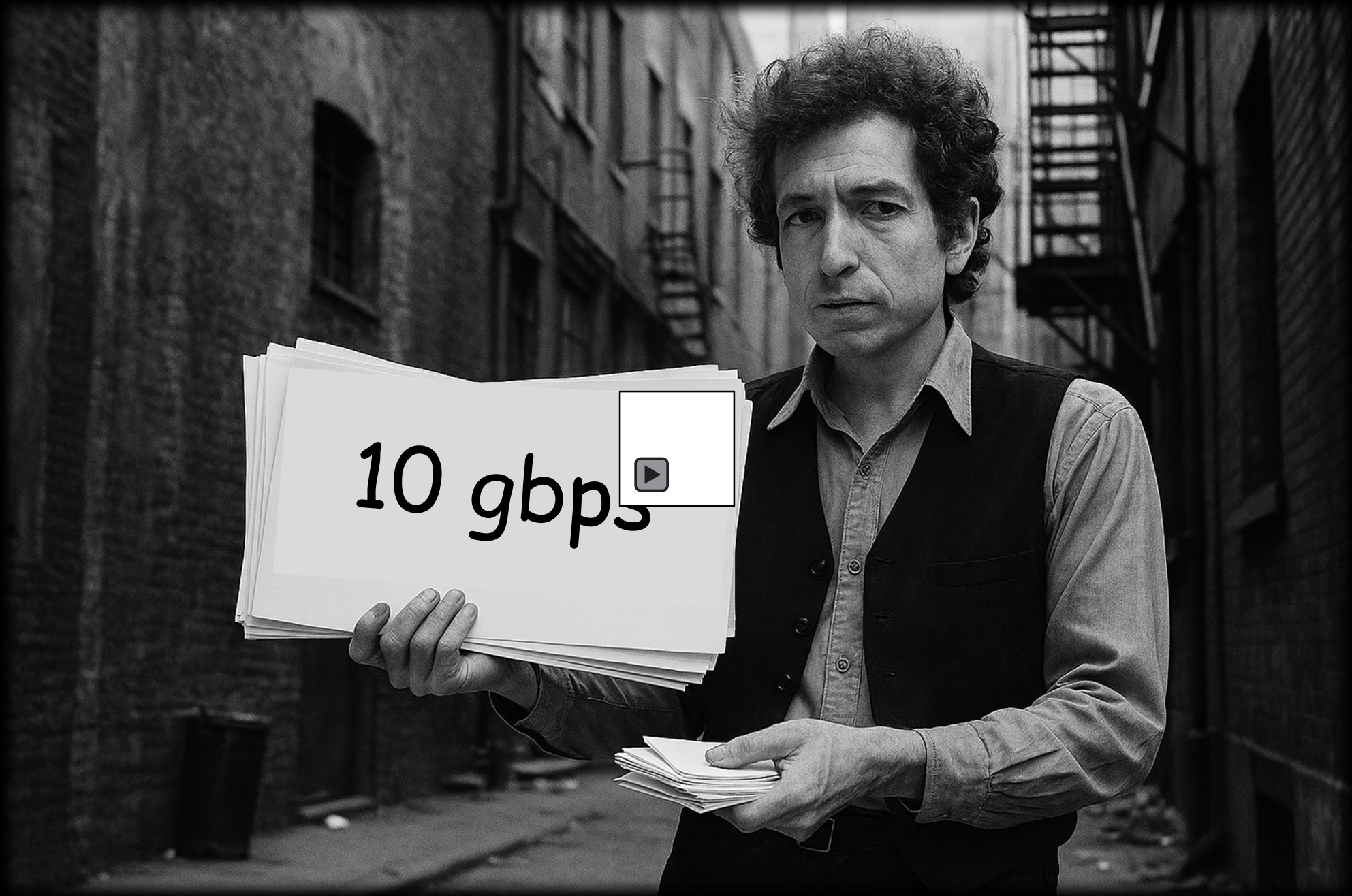
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10 gbps





Global NaaS Event

