



MEMORANDUM

To: NWCCOG Council
From: Nate Walowitz and Jon Stavney
Date: 9 March 2022
Re: **Details of DOLA Grant award to Project THOR and Region 10**

I am pleased to inform you that it was announced March 1st that NWCCOG has been awarded a \$2,195,758 DOLA Broadband Grant to upgrade the Project THOR network. Region 10 also received a grant to expand and extend their network as well. Because these network upgrades and enhancements have been designated as "Being of Significant Interest to the State", there is no local match required for these funds. The two Networks already cover most of the Western Slope of Colorado and are positioned to be THE rural public broadband network option for the Western Slope in coming years.

The grant will allow Project THOR to enhance regional capabilities and support development and deployment of the Project THOR/Region 10 joint operation Middle Mile Network. Essentially, this upgrades the Express Path fibers to support up to 42 100G waves that NWCCOG shares with Region 10 and upgrades the Regional Path to a bidirectional 200G for shared 'local traffic' and westbound resilience. Specific benefits for NWCCOG and Project THOR include;

1. Added 100G dedicated eastbound wave to Denver for each of our I-70 communities
2. Added 100G dedicated eastbound wave to Denver for Aspen, a dedication eastbound 100G wave to Denver for the 100G Western and Northern Loops, as well as a separate 100G dedicated eastbound wave from Frisco to Denver for Grand County and the Northern Loop back to Denver using I-70 ****Note: Today all communities share a 300G connection along I-70. The enhancement increases bandwidth significantly AND allows for future expansion to up to 1.9T (Terabits) should it be needed.
3. Maximizes the use of our I-70 Regional path to a shared 200G bidirectional "frontage road". This will provide the westbound backup paths to GWS AND allow us to add communities to the Project THOR network at a low equipment investment entry cost. This is similar to what we have today on our current 300G express path in terms of architecture
4. Allows the Regional Path architecture and optics to be upgraded in the future to a shared 400G and can implement wave equipment for up to 1.4T on the frontage road if needed in the future. **Note that today we underutilize our Regional Path and this will bring us better value for all our leased strands
5. Upgrade the Ciena MCP Operating System level to 10.x from 8.x, which beyond keeping up up to current revision levels and capabilities, allows upgrading the network from MPLS-TP to Segment Routing creating more of a mesh network architecture for future path flexibility and resilience

Financially, the grant provides the following benefits

1. Pays for the remaining 7 years of our 10-year CDOT IRU for our entire CDOT fiber infrastructure
2. Pays for 7 years of our IRU for Zayo fiber from I-70 into our 910 15th Street PoP
3. Pays for all foreseeable equipment upgrades
4. Pays for installation and configuration services

What this means MMC Hosts

1. Enhanced network capabilities and the ability to sell more bandwidth in more places
2. Combined with the new 100G leased waves, elevates ALL Meet Me Centers to Class 1, making the financial model equitably commensurate with capabilities
3. Provides Regional Path communities with enhanced bandwidth opportunities
4. **Allows the program to have stable and predictable business and financial models through 2027 and beyond. This model also corrects startup business model liabilities that Mammoth Networks created that enabled us to get up and running within our cost constraints**
5. Provides future redundant PoP location once the network is fully operational, as Region 10 will be sponsoring a connection to Salt Lake City as an additional internet drain

Project THOR financial models are being revised to reflect these changes.

Attached is the draft network architecture graphic.

NWCCOG – Project THOR 2.0 with Region 10

Legend

| | | | |
|--|-----------------------|--|-------------------------|
| | 200G – 400G DWDM Core | | 10G Shelf Interconnect |
| | Mammoth 200G | | 100G Shelf Interconnect |
| | Mammoth 100G (CTL) | | NWCCOG Hub Site |
| | DWDM Frontage Road | | Grand County Hub Site |
| | Service Provider 10G | | |

