MEMORANDUM OF AGREEMENT

CONNECTIVITY AND TRANSPORT SERVICE AT ATLANTA TEXAS

BETWEEN

TEXAS A&M UNIVERSITY

AND

ARKANSAS RESEARCH AND EDUCATION OPTICAL NETWORK

THIS MEMORANDUM OF AGREEMENT ("MOA") is entered into by and between the Arkansas Research and Education Optical Network (ARE-ON), and Texas A&M University, a member of The Texas A&M University System, an agency of the State of Texas (TAMU).

WHEREAS, ARE-ON has an existing optical fiber network that extends from Arkansas to Dallas, Texas, with an optical node collocated at the Level(3) Communications running line facility at #58 County Road 1925, Atlanta, Texas, and at the Equinix gateway facility at 1950 N Stemmons Fwy Suite 1039A, Dallas, TX; and

WHEREAS, the Lonestar Education and Research Network (LEARN) has an optical node on its network collocated in the ARE-ON suite at the Equinix gateway facility at 1950 N Stemmons Fwy Suite 1039A, Dallas, TX; and

WHEREAS, TAMU has constructed fiber optic cable that extends from Texarkana, Texas, to the Level(3) running line facility in Atlanta, Texas; and

WHEREAS, TAMU desires to connect its affiliates and users in Texarkana, Texas, to the LEARN optical network for transport of its data traffic to the TAMU main campus in College Station, Texas, and other points; and

WHEREAS, TAMU has requested that ARE-ON provide a 1Gbps Ethernet transport of its data traffic from Atlanta, Texas, to Dallas, Texas; and

WHEREAS, ARE-ON and TAMU desire to work in cooperation to fulfill the missions of their respective networks, organizations, and members; and

WHEREAS, ARE-ON and TAMU desire to assist each other in pursuit of their respective technology objectives;

NOW, THEREFORE, in consideration of the mutual promises contained herein, ARE-ON and TAMU hereby agree to the following terms and conditions:

1. ARE-ON and TAMU agree that this MOA had an Initial Term of five (5) years expiring in March 2018 and is being renewed for an additional 3 years expiring in March of 2021.

2. TAMU agrees to continue to pay all costs associated with maintaining a single mode fiber optic cable from Texarkana, Texas, to the Level(3) running line facility in Atlanta, Texas.
   a. TAMU agrees that it shall be solely responsible for the engineering, construction, and maintenance of its fiber optic cable between Texarkana and Atlanta.
   b. TAMU agrees that it shall be solely responsible for acquiring all licenses, permits, easements and rights-of-way for placement of the fiber optic cable and related facilities.
   c. TAMU agrees that it shall be solely responsible for all cable relocation requests or requirements by property or right-of-way owners for which it is legally obligated.
   d. TAMU agrees to perform or contract for all cable locates resulting from Call Before You Dig notifications for the cable between Texarkana and Atlanta, including the ARE-ON cable leading into the Level(3) meet-me handhole.

3. ARE-ON agrees to contract with Level(3) to maintain the following: (1) two strands on a house cable between the running line facility fiber distribution panel and the Level(3) meet-me handhole in Atlanta, (2) the splicing of two designated strands of the ARE-ON fiber to the two strands of the house cable, and (3) the provisioning of a cross-connect fiber within the building between the house cable’s fiber distribution panel and the ICC cage in which the ARE-ON optical node equipment is located. TAMU agrees to pay all recurring costs for the Level(3)
house cable and cross-connect, to be invoiced by ARE-ON as a pass-through cost on a monthly basis throughout the Term of this MOA. TAMU acknowledges that any increase in cost of the house cable or cross-connect by Level(3) shall be passed through to and paid for by TAMU.

4. ARE-ON agrees to maintain the necessary hardware and software to provision for TAMU’s sole and exclusive use one (1) 1G Ethernet transport provisioned across ARE-ON’s optical network between Atlanta and Dallas. TAMU agrees to continue to pay the recurring monthly 1G transport costs as identified in Appendix A. TAMU and ARE-ON agree that the provisioning terms remain as follows:

   a. All equipment purchased by each party for the purposes of this MOA shall remain the sole property of the respective purchasing party.

   b. The equipment purchased initially by ARE-ON shall be ADVA Optical Networking FSP 3000 R7 cards and components; however, ARE-ON reserves the right to upgrade and/or replace this equipment at its cost in the future at its sole option. Any such upgrade or replacement shall be coordinated in advance with TAMU.

   c. ARE-ON has provisioned a new 10G wave across its optical network between Atlanta and Dallas over which it has provisioned for TAMU’s sole and exclusive use one (1) 1G Ethernet transport between the muxponders at Atlanta and Dallas. TAMU may acquire additional 1G Ethernet transports across the same wave at any point during the Term of this MOA by paying the full equipping and installation costs and ARE-ON’s recurring 1G transport cost at 50% of the then current rate. TAMU acknowledges that additional 1G Ethernet transports may require additional optical splitters and additional strands on the Level(3) house cable and cross-connects in Atlanta, for which it will pay all associated costs.

   d. ARE-ON has provided a single 1G SFP pluggable interface, SMF, 1310nm, standard reach, on a muxponder in Dallas for connecting to a 1G Ethernet interface on the LEARN equipment colocated in the ARE-ON suite. ARE-ON has provided fiber patch cables from its equipment to the demarc patch panel on the LEARN rack. TAMU and/or LEARN shall provide the patch cables and all equipment for the interface on the LEARN side of the demarc patch panel.

   e. ARE-ON has provided a single SFP pluggable interface, SMF, CWDM tuned to channel #C1510, very long reach, on a muxponder in Atlanta for connecting to the TAMU fiber to Texarkana. ARE-ON has provided a four-channel CWDM splitter on its equipment in Atlanta to enable up to three additional CWDM waves over the same fiber pair in the future.

   f. TAMU and ARE-ON acknowledge that no Optical Service Channel (OSC) shall exist on the Texarkana to Atlanta span, and as a result management of the span is limited by the view that the individual endpoints have of the span.

5. TAMU agrees to maintain the necessary hardware and software to equip the Texarkana end of the Texarkana to Atlanta span. TAMU acknowledges that it shall maintain spares of all components of the Texarkana equipment, at its option. TAMU acknowledges that ARE-ON is under no obligation to manage, support or maintain the TAMU equipment in Texarkana.

6. TAMU agrees that it will contract separately with LEARN for connection to and transport across the LEARN network in Dallas.

7. ARE-ON agrees to provide hardware and software support for the equipment that it acquired for the 1G Ethernet transport service provided to TAMU.

   a. ARE-ON agrees to maintain spares of all components in the optical path between Atlanta and Dallas.

   b. ARE-ON agrees to keep all components in the optical path between Atlanta and Dallas under a continuous maintenance contract with its respective equipment providers.

   c. ARE-ON agrees to provide a toll-free telephone number and email contact to TAMU for the purpose of reporting problems with the 1G Ethernet transport service.

   d. In the event of routine scheduled maintenance, ARE-ON shall send an email notification at least seventy-two (72) hours in advance. In the event of emergency scheduled maintenance, ARE-ON shall send out notification as far in advance as possible. In the event of unscheduled maintenance, which could occur for example as a result of an equipment or fiber failure, ARE-ON will attempt to notify the parties affected by phone or email as soon as is practical. ARE-ON shall attempt to perform all scheduled maintenance during a maintenance window that has the lowest potential impact on its users and members.

   e. TAMU agrees to provide a list of operations contacts to ARE-ON, and to update it on a periodic basis, that will serve as ARE-ON’s
primary contacts in the event of a problem with the network or equipment.

8. ARE-ON acknowledges that it has no colocation rights or unescorted access to the equipment located at the Texarkana end of the Texarkana to Atlanta span as a part of this MOA. TAMU also acknowledges that it has no colocation rights or access to the equipment located at Atlanta or Dallas or any other part of the ARE-ON network as a part of this MOA.

9. TAMU agrees to pay ARE-ON all charges required under this MOA within thirty (30) days of the date of a properly formatted and submitted invoice.

10. Any and all claims, disputes or controversies arising under, out of, or in connection with the Agreement which the parties shall be unable to resolve within sixty (60) days shall be mediated in good faith. The party raising such dispute shall promptly advise the other party of such claim, dispute or controversy in a writing which describes in reasonable detail the nature of such dispute. By not later than fifteen (15) business days after recipient has received such notice of dispute, each party shall have selected for itself a representative who shall have the authority to bind such party, and shall additionally have advised the other party in writing of the name and the parties shall enter into good faith mediation and shall share the costs equally. If the representatives of the parties have not been able to resolve the dispute within thirty (30) business days after such mediation hearing, the parties shall have the right to pursue any other remedies legally available to resolve such dispute. Nothing in this MOA shall be construed to waive any rights or timely performance of any obligations existing under this Agreement or any immunities of the parties.

11. Either party may terminate this MOA without cause by providing written notice to the other party no later than ninety(90) days prior to the expiration of the then current term or for cause upon thirty (30) days written notice and failure to cure any material breach within thirty(30) days of receipt of notice. Furthermore, either party may cancel this MOA to the extent the funds are no longer legally available for expenditures under this MOA.

12. In the event that TAMU terminates this MOA for convenience prior to the expiration of the current term, TAMU agrees it is responsible for payment of ARE-ON obligations accrued for ARE-ON performance under this MOU through the date of termination, including any late fees associated with such payment obligations, and any charges or costs relating to termination, including third party termination fees.

13. Notwithstanding any term or provision to the contrary, this MOA is subject to the continuation of colocation services provided by Level(3) to ARE-ON at the Atlanta running line facility and at 3180 Irving Blvd, Dallas, TX. In the event any relevant colocation services agreements between ARE-ON and Level(3) are not renewed or are terminated, this MOA shall terminate and there shall be no further obligations between the parties, provided, however, that any payment obligations accrued through the date of termination, any late fees associated with such payment obligations, and any charges or costs relating to termination, including third party termination fees, shall survive.

14. Nothing in this MOA shall obligate ARE-ON to provide or share services with TAMU except as expressly provided herein, and, to the extent permitted by law, ARE-ON shall not be liable to TAMU or any third party for any costs, damages or liability arising from the non-renewal, termination, or failure to provide services by Level(3) or LEARN. Furthermore, in the event that LEARN terminates its colocation in the ARE-ON suite at 1950 N Stemmons Fwy Suite 1039A, Dallas, TX, TAMU agrees that it shall be responsible for all costs associated with extending the network beyond the ARE-ON demarc in the ARE-ON suite to LEARN’s facilities, which may include, but not necessarily be limited to, additional equipment, cross connects, waves, circuits, or fiber interconnects.

15. Neither party is the agent or legal representative of the other party, and this MOA does not create a partnership, joint venture or fiduciary relationship between or among either of the parties. Neither party shall have any authority to agree for or bind the other party in any manner whatsoever. This MOA confers no rights, remedies, or claims of any kind upon any third party, including, without limitation, either party’s subscribers or end-users.

16. This MOA may not be assigned by either party without both parties’ mutual written agreement.

17. This Agreement may be executed concurrently in one or more counterparts, each of which shall be an original, but all of which together shall constitute one and the same instrument. This Agreement may be executed by facsimile or e-mail.
Arkansas Research and Education Optical Network

[Signature]

Steven Fulkerson

[Printed Name]

Executive Director

[Title]

5/16/2018

[Date]

TAMU

[Signature]

Robert C. Bounds

[Printed Name]

Director, Procurement Services

[Title]

5/4/2018

[Date]
APPENDIX A

SUMMARY OF COSTS

Description: ARE-ON shall provide a new service to TAMU to equip a 10G wave from Atlanta, Texas, to Dallas, Texas, on the ARE-ON optical network over which a 1G Ethernet transport is provisioned for the sole and exclusive use of Texas A&M University.

Current Monthly Recurring Costs:

<table>
<thead>
<tr>
<th>Service</th>
<th>Monthly Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level(3) House Cable &amp; Cross Connect MRC – Atlanta</td>
<td>$800</td>
</tr>
<tr>
<td>ARE-ON 1G Transport – Atlanta-to-Dallas</td>
<td>$1,100</td>
</tr>
<tr>
<td><strong>Total Monthly Recurring Costs</strong></td>
<td><strong>$1,900</strong></td>
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</table>

OPTIONAL Additional Services:

<table>
<thead>
<tr>
<th>Service</th>
<th>Monthly Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARE-ON Additional 1G Transport – Atlanta-to-Dallas</td>
<td>$550</td>
</tr>
<tr>
<td>ARE-ON 10G Transport – Atlanta-to-Dallas</td>
<td>$2,200</td>
</tr>
<tr>
<td>(No NRC for 10G upgrade)</td>
<td></td>
</tr>
</tbody>
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