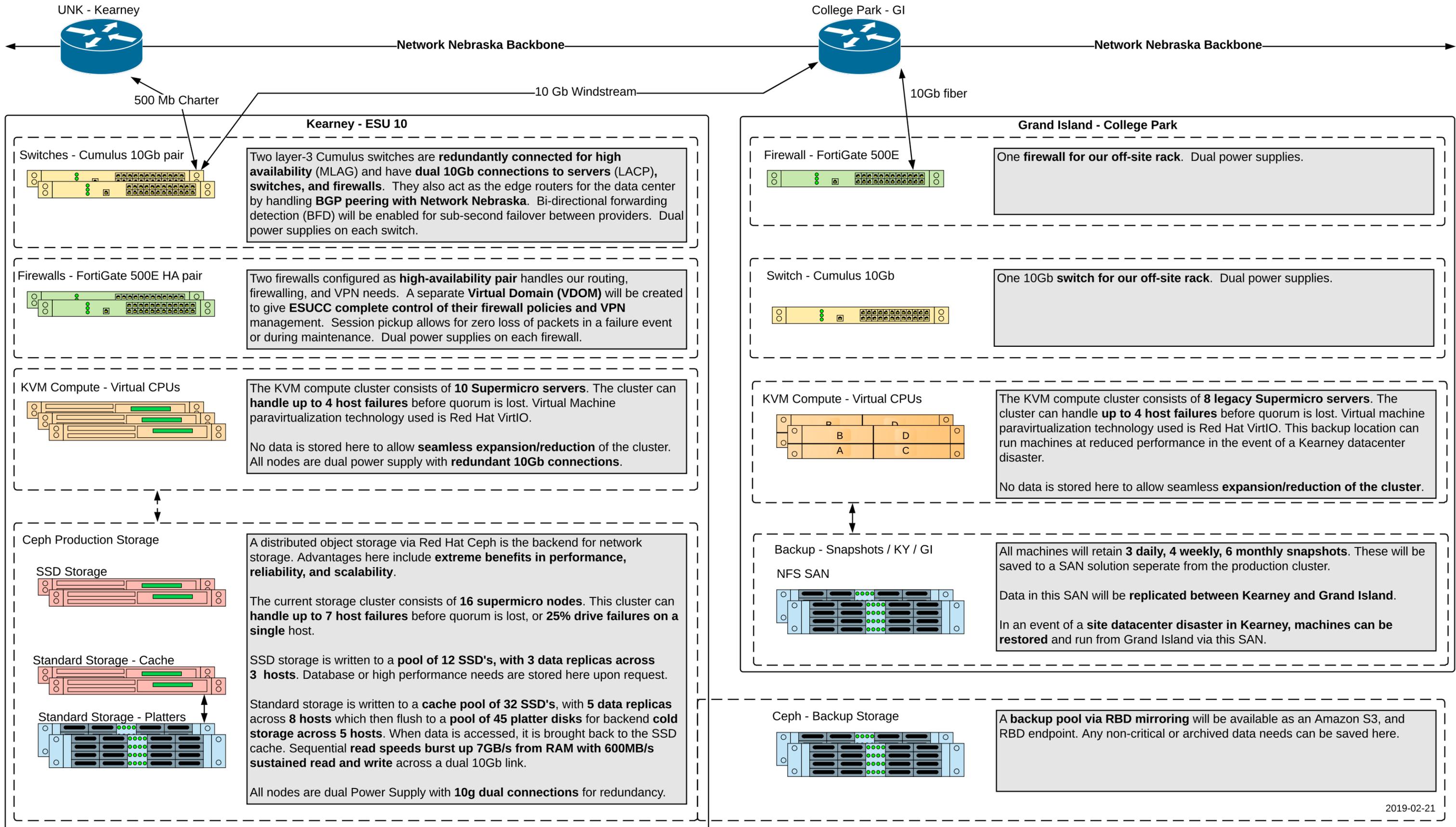


Technology Committee Meeting
Wednesday, March 6, 2019 9:00 AM
ESU 9 plus Zoom
6949 South 110th Street
LaVista, NE 68128

1. Call to Order
Committee Chair
2. Roll call
Committee Chair
3. Agenda Item
Committee Chair
 1. Learn360 Presentation by LPS
Chris Haeffner, LPS
 2. Approve Learn 360 Agreement - 2019-20
Committee Chair
 3. ESU Tech Survey
Dean Folkers
 4. Approve ESUCC commitment to update LR 264 Study
Dean Folkers
 5. Approve ESUCC Hosting Services RFP
Executive Director Ludwig/Isaacson
6. MSA 2019-2020
Committee Chair
 1. Special Projects and Learning Objects Section
Executive Director
 2. NOC Meeting Minutes
Committee Chair
 1. Approve NOC Budget Request for KSB Q&A
Committee Chair
7. Approve PDO 2019-2020 Budget Requests
Committee Chair
 1. Approve NOC Budget Request
Committee Chair
 2. Approve TLT Budget Requests
Committee Chair
8. DE2TAILS - Innovation Grant
David Ludwig/Scott Isaacson
 1. Tech Plan
Scott Isaacson
 1. ADVISER Update
Scott Isaacson
 2. Single Sign On
Scott Isaacson

3. Sustainability
Scott Isaacson
2. SRS/AAP Technology update
Scott Isaacson
3. BlendEd
Scott Isaacson
4. NROC/EdReady
Scott Isaacson
5. SIMPL
Scott Isaacson
9. Staff Reports
Committee Chair
 1. Scott Isaacson
Scott Isaacson
 2. Beth Kabes
Beth Kabes
 3. Rhonda Eis
Rhonda Eis
4. Next Meeting Agenda Items
Committee Chair
5. Adjournment
Committee Chair

Logical Datacenter View



Educational Service Unit No. 5

Gage, Jefferson, Thayer Counties - Nebraska

Dr. Brenda McNiff – Administrator

900 West Court
Beatrice, NE 68310

Office: 402-223-5277
Fax: 402-223-5279

ESU 5 is proposing the following hosting solution for ESUCC dependent on a final contract:

Scope of Work

ESU 5 will provide Compute, Memory and Storage for the specs provided by ESUCC:

- 74 (VMs), 268 virtual CPUs, 1.1 TB of RAM, and 23TB of disk storage
- Quote allows for a 10% increase over the life of the agreement
- Live Optics Scan was Run and is attached to this quote to show real world usage

ESU 5 will provide and maintain the Server Hardware, Networking, Firewall, Bandwidth and VMware licensing for the local hosted cloud environment. ESUCC will be responsible for, and required to manage, the firewall VDOM that will be created for them as well as all ESUCC VM's, Software, Software Licensing, and networking within their VDOM. ESU 5 will provide a reliable hardware platform by utilizing the latest Dell/EMC Hyper Converged Infrastructure. New equipment will be set up and configured with the help of the Davenport Group and a Dell/EMC Engineer to ensure proper installation and knowledge transfer. ESU 5 will work with the ESUCC to help convert and migrate the Hyper-V instances to our VMware Environment.

ESU 5 Hosting Environment

ESU 5 leases a full rack of space at Nebraska Hall in Lincoln Nebraska for Powerschool Hosting of Nebraska Powerschool Cooperative schools. We will be replacing our current equipment as it is approaching 5 years old. New equipment will take the needs of ESUCC in consideration and consist of:

- Dell/EMC VxRail E560 5 Node System allowing for 2 node failures
- 4 hour Dell/EMC Mission Critical Support
- **All Flash Storage** running vSAN Advanced
- VMware Platform
- Redundant 10Gbps interfaces on each node
- Redundant FortiGate 600E Firewalls
- Redundant 10 Gbps switches
- Redundant 1 Gbps switches
- FortiAnalyzer for Reporting/Troubleshooting
- 10 Gbps connection between ESU 5 and Nebraska Hall for Management/Backups
- Full VM Backups replicated offsite for disaster recovery
- All data stays Local - Nebraska

Pricing

3 Year contract @ \$60,000/Year

1 Time Conversion/Migration Fee @ \$10,000

Total 3 Year Contract - \$190,000



live optics

PERFORMANCE OVERVIEW



PROJECT: APP2 2019-02-04 10:50 -06:00

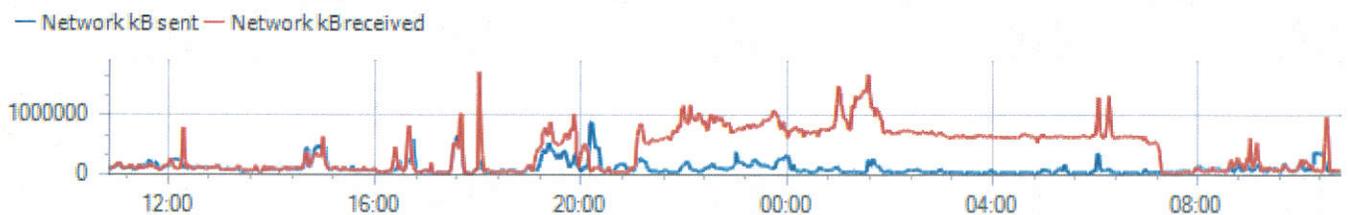
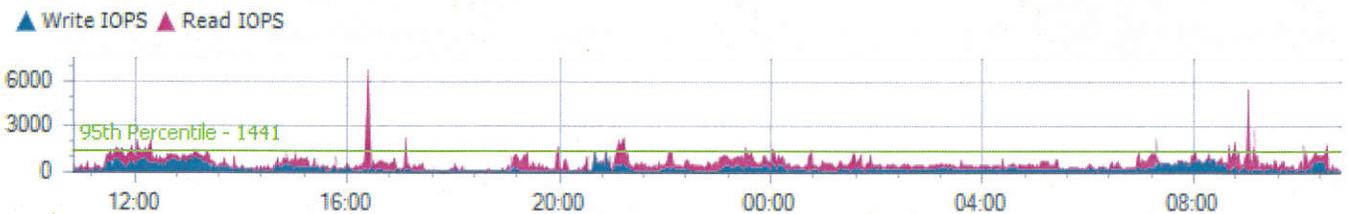
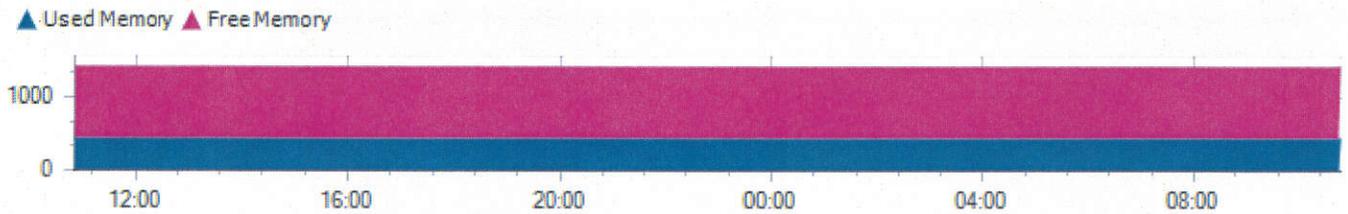
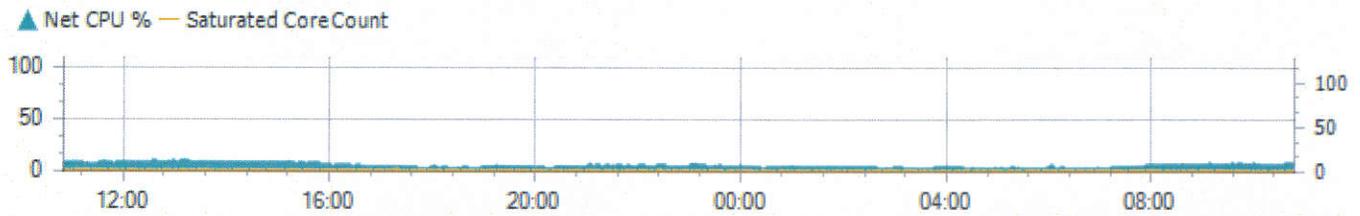
PREPARED FOR: Scott Isaacson, sisacson@esucc.org

PREPARED BY: Dale Smith, dale.smith@davenportgroup.com, 615-307-6880

CREATED: 2/6/2019

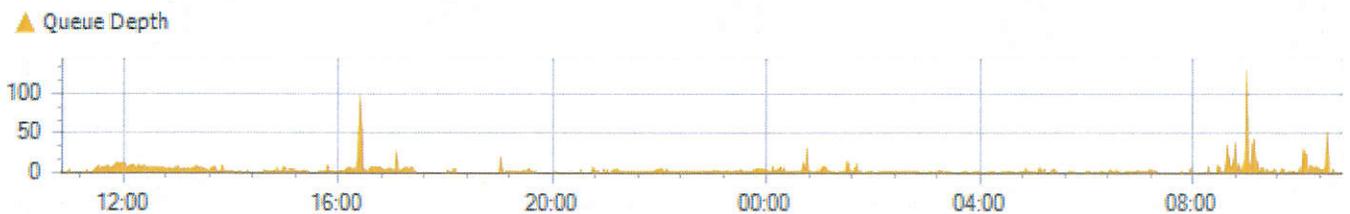
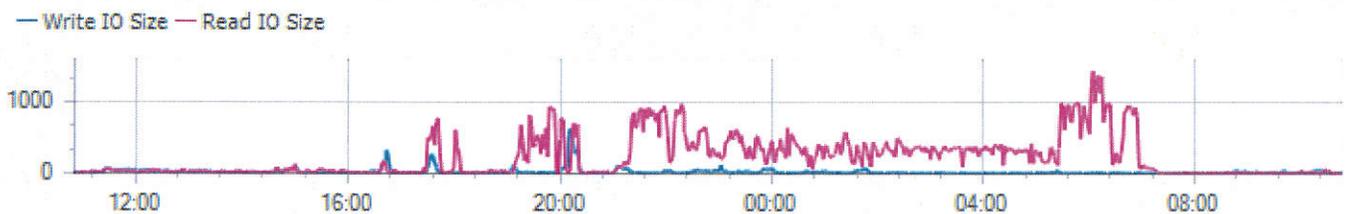
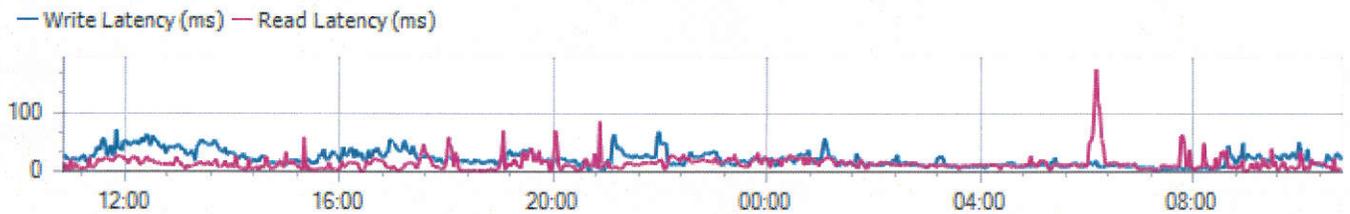
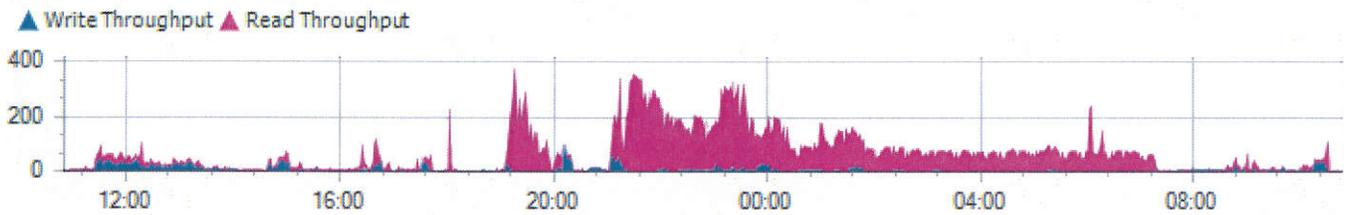
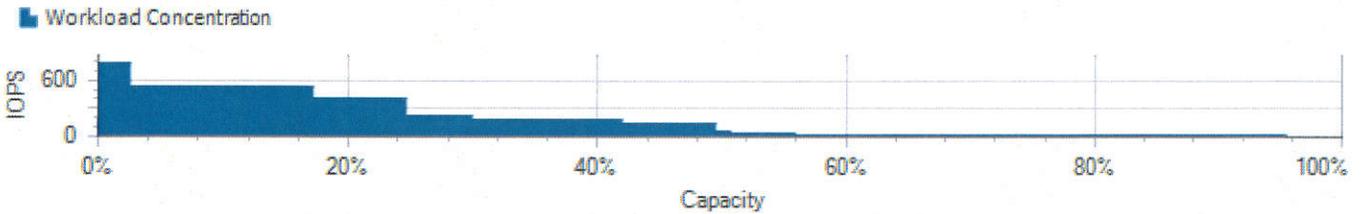
Executive Summary

Time Recorded	23 Hour(s), 59 Minute(s), 2/4/2019 - 2/5/2019		
Total Combined Capacity	30.61 TB	Peak Aggregate Network ...	251.61 MB/s
Total Used/Free Capacity	16.23 TB / 14.38 TB	Total Memory	1.38 TB
IOPS	6797 at peak, 1441 at 95%	VM Guest Count	68
Read/Write Ratio	68% / 32%	Peak page fault of 31840 for server APP7	
Average Daily Write	704.87 GB	A peak of 32.1 (11.8%) of 271.2 NetCPU Cycles (GHz)	
Total Cores / Total Proces...	116 / 16	56% of IOPS falls on 20% of your capacity (3.25 TB)	



Executive Storage Summary

Time Recorded	23 Hour(s), 59 Minute(s), 2/4/2019 - 2/5/2019		
Total Local Capacity	30.61 TB	Total Shared Capacity	0 GB
Free/Used Local Capacity	14.38 TB (47%), 16.23 TB (53%)	Free/Used Shared Capacity	0 GB (100%), 0 GB (0%)
Disk Throughput	378 MB/s	Total Disks	16



 Servers Recorded

Server Name(s)	Local Capacity	Free Capacity	Used Capacity	IOPS	Disk MB/s	Read/Write Ratio
APP2	7.91 TB	1.83 TB	6.08 TB	90	87	76% / 24%
APP3	1.38 TB	1.05 TB	339.00 GB	6	233	26% / 74%
APP4	1.90 TB	525.00 GB	1.39 TB	153	94	43% / 57%
APP5	2.31 TB	711.00 GB	1.61 TB	948	129	83% / 17%
APP6	5.07 TB	2.94 TB	2.13 TB	206	158	68% / 32%
APP7	5.82 TB	2.57 TB	3.25 TB	610	139	33% / 67%
APP8	4.32 TB	3.45 TB	886.00 GB	186	109	56% / 44%
SQL-ALPHA	1.91 TB	1.33 TB	588.00 GB	19	121	37% / 63%

Capacity shown only reports capacity that is local to the server. Shared Cluster Disk capacities are not shown in this table. IOPS shown are based on the 95th percentile IOPS for the individual server. As each server's individual 95th percentile may occur at different times than other servers, adding up the individual server 95th percentiles will not be the same as the summary aggregate 95th percentile IOPS for the entire report. The IOPS shown include any IO to shared cluster disks.

The Read and Write ratios shown represent the ratios during the top 10% of the server's IO activity as measured by IOPS.

Disks Recorded

Server Name(s)	Device Name	Local Capacity	Free Capacity	Used Capacity	95% IOPS	Read/Write Ratio
APP2	0 C:	931.00 GB	717.00 GB	214.00 GB	58	64% / 36%
APP2	1 D:	7.00 TB	1.13 TB	5.87 TB	15	92% / 8%
APP3	0 C:	410.00 GB	195.00 GB	215.00 GB	5	51% / 49%
APP3	1 D:	1000.00 GB	876.00 GB	124.00 GB	0	12% / 88%
APP4	0 C:	410.00 GB	223.00 GB	187.00 GB	6	67% / 33%
APP4	1 F:	1.50 TB	302.00 GB	1.21 TB	147	40% / 60%
APP5	0 C: D:	1.82 TB	633.00 GB	1.20 TB	407	89% / 11%
APP5	1 E:	500.00 GB	78.00 GB	422.00 GB	782	85% / 15%
APP6	0 C: D:	1.82 TB	530.00 GB	1.30 TB	189	68% / 32%
APP6	1 E:	3.25 TB	2.42 TB	852.00 GB	48	76% / 24%
APP7	0 C: D:	1.82 TB	978.00 GB	884.00 GB	228	53% / 47%
APP7	1 E:	4.00 TB	1.61 TB	2.39 TB	527	25% / 75%
APP8	0 C: D:	1.82 TB	1.16 TB	679.00 GB	186	56% / 44%
APP8	1 E:	2.50 TB	2.30 TB	207.00 GB	0	100% / 0%
SQL-ALPHA	0 C: D:	931.00 GB	347.00 GB	584.00 GB	19	37% / 63%
SQL-ALPHA	1 I:	1.00 TB	1020.00 GB	4.00 GB	0	0% / 100%

Capacity shown only reports capacity that is local to the disk. Shared Cluster Disk capacities are not shown in this table. IOPS shown are based on the 95th percentile IOPS for the individual disk. As each disks individual 95th percentile may occur at different times than other disks, adding up the individual disk 95th percentiles will not be the same as the summary aggregate 95th percentile IOPS for the entire report.

Definitions

CPU

The CPU shown in the individual server reports measures the utilization of the CPU as a percentage of the total available CPU clock cycles. When shown in the aggregate summary, the CPU aggregate represents the sum of the clock cycles utilized. The saturated core count shows the number of CPU cores that were observed to have a usage level of 90% or more during the sampling period. This count provides insight into how your CPU workloads are distributed across all the cores. If a core is saturated, the task that it is processing is bottlenecked on the CPU. By spreading tasks out over multiple threads (and thus multiple cores) the bottleneck may be removed. Live Optics supports saturated core counts for Windows and Linux hosts. Saturated core counts for other host operating systems are not supported.

IO Transfer Size

This unit of measure records the average payload size of a given set of read or write operations. The average IO transfer size may be used to describe the nature of the IO workload and is an important factor in understanding the character of an IO workload.

IOPS

Live Optics monitors the read and write operations at the block storage layer of the host operating system. IOPS are the Input / Output Operations per Second performed by a physical server host or a virtual machine.

Latency

The average time required for the host to complete an IO operation is measured as its average latency. Live Optics monitors latency at the host level. Like queue depth, the host's latency will differ from latency reported by external storage arrays, and individual disks within RAID sets. Intermittent spikes in latency should not be a matter of concern. Also, average latency reported in Live Optics is only accurate when the sustained IOPS are over 100 IOs per second. High latencies reported during very low periods of IOPS should be discounted and often can be attributed to counter skew factors associated with the latency calculation. Latency is an important factor when investigating a storage solution that is demonstrating known problems at the application layer. Most applications will not tolerate abnormally high levels of latency on a sustained basis.

MB/s

Megabytes per second represents the average rate of read and write IO transfers in terms of payload size per second. This measures the IO throughput of a given system and is an important factor in sizing storage network bandwidth requirements.

Memory

The memory shown in the individual server reports measures the total available (free) and used memory for the server. When shown in the aggregate summary, the total memory shown represents the aggregate memory usage (and free memory) of all servers in the report.

Participation

This simple chart shows the number of servers that were monitored for the given sampling period. If the connection between Live Optics and a server was lost, the participation chart will show a drop during the period when the server was out of communication with Live Optics.

Queue Depth (QD)

The number of outstanding IO operations that are the host is processing at any given time is the queue depth. Live Optics monitors queue depth at the host level. Host level queue depth will differ from the queue depth reported by external storage arrays, and individual disks within RAID sets. Storage devices tend to perform faster when queue depths are higher. However, high queue depths can also lead to higher than acceptable latencies.

Definitions Continued

Page Faults

Page Faults per Second show the rate of hard page faults that required a virtual memory page to be read from disk. High hard page fault rates may suggest insufficient physical memory allocation to the OS and can be signs of application performance problems.

Workload Concentration Line

Workload Concentration plots the total used capacity of the project by disk along the X-axis and the IOPS activity of each disk along the Y-axis. The disks are sorted by IOPS with the disks with the highest IOPS being closest to the Y-axis on the left. The vertical line drawn splits the graph into two sections, with the section on the left indicating the region that compromising 20% of the total used capacity, and the region on the right showing the remaining 80% of the capacity. The label shows you the portion of IOPS that fall on either region. Note: the IOPS shown are observed only at the disk scope. Live Optics does not analyze IO activity at a block level based on the address of individual IOs on a given disk. Additional IO concentration may or may not be present at the block level within the individual disks.

Workload Concentration Bubble

Workload Concentration plots a bubble chart of your disks and sorts them by their IO activity. The vertical placement of the bubble represents the amount of IO. The size of each bubble is proportional to the capacity of the disk. The horizontal axis demonstrates the total amount of IO that falls within a certain percentage of total capacity.



Committee Report

PROJECT NAME: BlendEd and Distance Ed

PROJECT DIRECTOR: Beth Kabes

REPORT PERIOD: March, 2019

COMMITTEE REPORT:

BLENDED:

Pilot

- Visited Humphrey, Howells-Dodge Consolidated, Pierce in February.
- ESU Coaches Monthly.
 - March 4, 2019

Open Education Resources Project

- OER Commons meeting on February 21, March 4.
 - OER Nebraska Hub: <https://www.oercommons.org/hubs/nebraska>

Promotion and Professional Development of BlendEd

- Presented at UNK Tech Edge in Kearney, February 9
- Attended ESUCC Legislative Day in Lincoln, February 13
- Presented at NAG Conference (High Ability Learners), February 22

DISTANCE EDUCATION:

- Website for resources and current information for DL
- Attended TLT training for 360 video for creating virtual field trips at Henry Doorly Zoo, February 7
- Attended as President-Elect of NDLA the winter conference, February 14-15
- Met with UNMC Online Learning Team to review and discuss VFT opportunities, online Health Occupations content for 6-12 Science support, February 26
- NDLA Monthly meetings

ESUPDO:

- TLT Leadership Meetings, March 5
- TLT Special Project Webinars, February 12, 26

AESA:

- Member of AESA Affinity Group for OER
- A co-leader of AESA Affinity Group for Blended and Personalized Learning

MISCELLANEOUS:

- Served on Sidney High School AdvancEd Engagement Review Team, January 30-February 1
- Served on Centura Elementary School AdvancEd Engagement Review Team, February 18-20.
- Met with UNO College of Education CAEP Coordinator, Kim Gangwish. I am on the UNO CAEP Evaluation Team (similar to AdvancEd for K-12)



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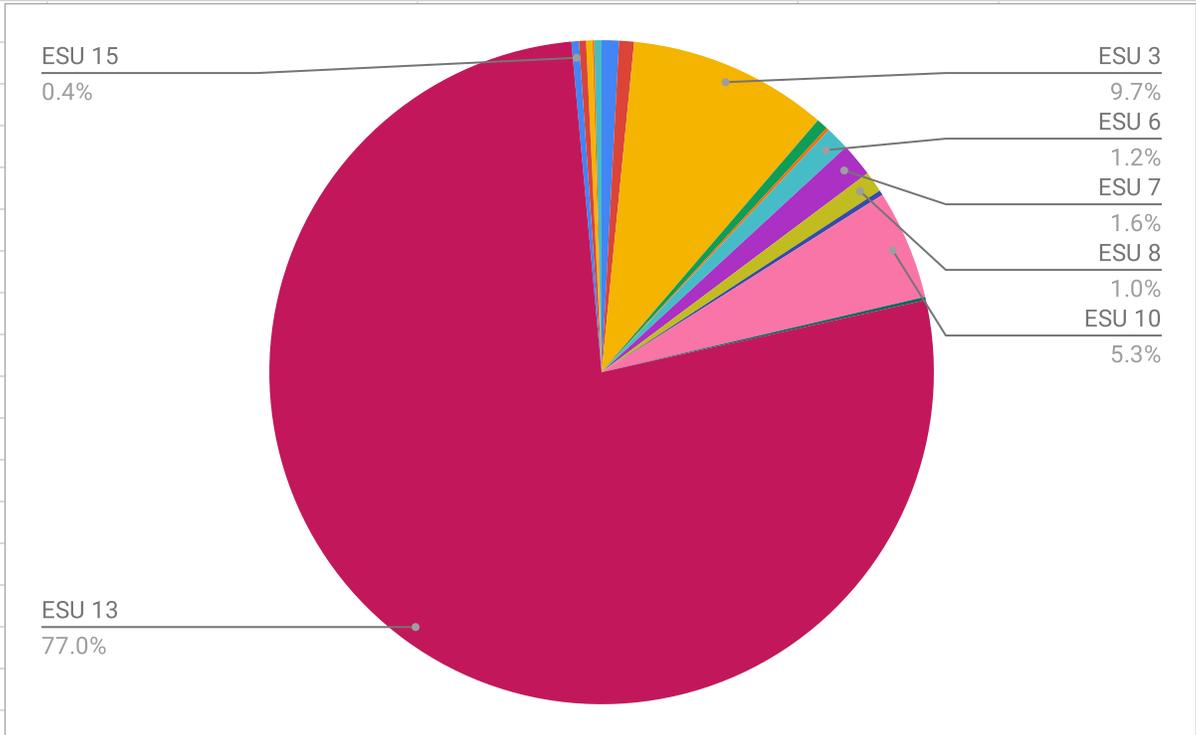
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SSO Sessions by ESU

Feb. 4 - Mar. 4, 2019



ESU 1	232
ESU 2	201
ESU 3	2690
ESU 4	154
ESU 5	41
ESU 6	319
ESU 7	450
ESU 8	282
ESU 9	67
ESU 10	1474
ESU 11	43
ESU 13	21320
ESU 15	101
ESU 16	94
ESU 17	85
ESU 18	2
ESU 19	22
State	98



PROJECT NAME: Instructional Materials: Media On Demand
PROJECT DIRECTOR: Rhonda Eis
REPORT PERIOD: March 2019

Learn360 Subscription Details for 2019-20

- Term Dates : September 1, 2019 - August 31, 2020
- Each ESU will pay a fee based on a schedule equivalent to fifty percent of the contract divided equally among the participating ESUs. The remaining amount will be divided based on participating Nebraska public schools' PK-12 enrollment after the cost for non-public schools are calculated and deducted for that fifty percent of the contract.
- ESU will be invoiced - October 2019
- **Fee:** \$0.40 per student with statewide student count over 200,000
\$0.45 per student with statewide student count 199,999 or less
Total amount based upon student enrollment of participating ESUs
- ESUs 2, 6, 10 and 19 have opted not to participate which puts the current state total below 200,000 students. Current estimated state cost = \$90,000
 - Preliminary estimates are that if other ESUs opt out, the cost per ESU would not increase more than \$500 per ESU and could be less depending on the size of the ESU
- **Bonus offer:** A one-year subscription to select Infobase databases. ESUs may select one elementary/middle and one middle/secondary database at no cost for one year. At the end of the term, the databases are available for purchase through the ESUCC Marketplace at either \$0.33 or \$0.49 per student depending on the database.
- Infobase has set up a free trial through April 15, 2019 to allow ESUs to preview databases before selection. [Link to database list and trial information](#)
- Google form to be sent out mid-April - ESUs to make database selections by May 1, 2019
- 2020-21, Infobase will increase the price for Learn360 by \$0.01 per student for Learn360 plus two new databases at no cost.

Learn360 - Estimated Cost per ESU

ESU	Public Count 2018-19	NonPublic Count 2018-19	Total Students	Estimated Cost Per ESU 2019-20
1	11,469	952	12,421	\$6,365.99
3 (no Millard)	59,301		59,301	\$16,264.07
4	6,582	613	7,195	\$5,158.38
5	5,710	342	6,052	\$4,848.17
7	12,994	2,469	15,463	\$7,377.87
8	10,704	1,900	12,604	\$6,627.43
9	9,675	679	10,354	\$5,855.83
11	5,029	58	5,087	\$4,573.35
13	14,143	483	14,626	\$6,732.23
15	3,726	147	3,873	\$4,332.10
16	8,315	570	8,885	\$5,513.17
17	1,533	57	1,590	\$3,818.15
18	42,020		42,020	\$12,533.26
TOTALS	191,201	8,270	199,471	\$90,000.00



PROJECT NAME: BlendEd Projects – Instructional Materials

PROJECT DIRECTOR: Rhonda Eis

REPORT PERIOD: March 2019

2019-20 MSA: Instructional Materials

On February 12, a group with representatives from the ESUCC Technology Committee, TLT affiliate and ESUCC staff met to review the Instructional Materials portion of the MSA. The suggested updates were added to the draft MSA 2019-20 for review.

- Fees for BlendEd Initiative – increase from \$5,400 to \$5,500 (reason: to help to cover costs for the OER Annual Service Plan)
- Media on Demand – update to new subscription plan and estimated costs
- LOR – update to include information on current platforms in use, OER information moved from the New Acquisition section to this section – no fees identified
- Special Projects - update for clarity and add using the funds for promotion and awareness of existing instructional resources and for curation and creation of resources. Also, add \$500 to this category. Total \$5,000 per ESU. Clarify that fees are only invoiced when actual cost incurred.
- Learning Objects Acquisitions – update for clarity and add using the funds for promotion and awareness of existing instructional resources. Total \$5,000 per ESU. Clarify that fees are only invoiced when actual cost incurred.

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7	12,994	2,469	15,463	\$7,377.87
8	10,704	1,900	12,604	\$6,627.43
9	9,675	679	10,354	\$5,855.83
11	5,029	58	5,087	\$4,573.35
13	14,143	483	14,626	\$6,732.23
15	3,726	147	3,873	\$4,332.10
16	8,315	570	8,885	\$5,513.17
17	1,533	57	1,590	\$3,818.15
18	42,020		42,020	\$12,533.26
TOTALS	191,201	8,270	199,471	\$90,000.00

Open Education Resources Project

- March data - 328 members
- OER TLT Work Group will meet on March 14 to review and work on the OER Toolkit
 - Dorann Avey, NDE, working on the OER Toolkit that will launch from the NDE site. The toolkit is divided into modules that address the creation, use, and curation of OER.
- NDE training dates and locations confirmed
 - March 23 - Science (Lincoln - Pound MS)
 - July 9 - 11 - Business (ESU 10)
 - July 9 - 11 - FCS (ESU 10)
 - July 9 - 11 - PE (ESU 10)
 - July 23 - 25 - HS Science (Kearney)
- Nebraska OER Hub: <https://www.oercommons.org/hubs/nebraska>
- Nebraska OER Information: [Group link](#)
- OER ESUCC Update link: [click here](#)

Upcoming TLT Meeting

- March 14th – TLT Work Groups – Zoom
 - OER, Instructional Materials and BlendEd Work Groups

2018-19 TLT Leadership Team

- Co-Chair - Eileen Barks, ESU 2
- Co-Chair - B.J. Peters, ESU 13
- Co-Recorder - Katie Morrow, ESU 8
- Co-Recorder - Shara Johnson, ESU 2
- Co-Representative - Peg Coover, ESU 10
- Co-Representative - Nick Ziegler, ESU 5
- ESU Coordinating Council - Beth Kabes
- ESU Coordinating Council - Rhonda Eis
- Nebraska Department of Education - Dorann Avey

ESU Network Operations Committee

February 27th, 2019, 9:00 am - 3:30 pm

ESU 16 or via Zoom Room #748 430 9140

(use NOC Admin host key 505070 to become the host)

Join from PC, Mac, Linux, iOS or Android: <https://zoom.us/my/nocadmin>

Or iPhone one-tap (US Toll): +16465588656,,7484309140# or +16699006833,,7484309140#

H.323: 162.255.37.11##748 430 9140

SIP: 7484309140@zoomcrc.com

2018-19 Schedule

[ESUCC_PDO 2yr Calendar](#)

Meetings (Dates & Location)

- September 13, 2018 @ ESU 3 (La Vista)
- November 6 meeting, 7-8 training @ ESU 2 (Fremont) maybe ESU 1
- Feb 27-28, ESU 16 (North Platte) - Efficient IP training maybe on Feb. 28th
- April 24 @ ESU 11 (Holdrege).

Notes:

NOC fiscal year is 09/01/18 through 08/31/19

NOC budget needs to be submitted in January for the next fiscal year

Annually review users on noc@esucc.org

Purpose: to deliver secure, reliable, unified, user-friendly, and comprehensive systems in support of teaching and learning in Nebraska

In Attendance:

ESU 1: Jim Hopkins	ESU 10: Ron Cone, Brandon Cone
ESU 2: Corey Colvin	ESU 11: Alex Wyatt
ESU 3: Mark Hansen (DL), Bill Pulte (DL, GlobalNOC only)	ESU 13: Ben Mientka
ESU 4: Dustin Buggi	ESU 15: Wally White
ESU 5: Ryan McDowell	ESU 16: Scott Jones, Chad Dewester, Todd Hatcher
ESU 6: Jamen Hall	ESU 17: Ben Anthony (DL)

ESU 7: Dan Ellsworth (DL)	ESU 18: Tim Klein(DL), Ben Wilson (remote)
ESU 8: Brent Pickrel	ESU 19:
ESU 9: Gary Needham	
Non-voting attendees (ESUCC, NNNC, Network Nebraska, NDE, etc.): Ted Deturk, Scott Isaacson, Deb Hericks (DL), Tom Rolfes, SuAnn Witt, Greg Gray, Erik Schmersal, Walter Aude	

Discussion and Action Items

Opening Items

Introductions

Approve [Previous Minutes](#)

- Motion: Chad Dewester
- Second: Ryan McDowell
- Approval: Voice Vote - Approved

Approve Current Agenda

- Motion: Corey Colvin
- Second: Jim Hopkins
- Approval: Voice Vote - Approved

●

Network Nebraska - GlobalNOC

- **How did we get here and what problem are we trying to solve?**
 - Discussion has been going on for some time. Ben Mientka assisted in buying SolarWinds, which has been used for a few years.
 - OCIO is interested in better visibility (concern expressed in 2015), partially to hold vendors accountable for network performance, partially as a communication tool to members regarding network health.
 - Budget notes: Membership generates about \$750K per year. Backbone about \$58 / yr, Internet access (90 Gbps) about \$300-400K (separately billed to ordering entities), GlobalNOC proposal is about \$60K, or \$17 per member per month.
 - Recognition that “taking the network to the next level” will require additional services, and knowing the impact on the network will be a key component of that.

- **GlobalNOC Presentation at 9:30** (GlobalNOC team & Greg Gray)
 - NNAG Handouts: [Proposal](#) and [Tools presentation](#)
 - Dan Doyle, daldoyle@iu.edu; Network Data Collection and Analysis Team
 - Toolset includes: network measurement, management, monitoring, control and visual tools.
 - Goals:
 - Monitor and observe real-time status
 - Provide concise, clear, and accurate answers
 - Allow these systems to flex with the needs of the network over time
 - Provide a consistent way to view and interact with data
 - Customer Portal:
 - Interface counter data
 - Monitoring status
 - Flow data
 - Dashboards
 - Reporting
 - Overlay real-time network status information in geographical context
 - Tag-based searching in SNAPP tool
 - GlobalNOC Database:
 - Repository for contacts, equipment, circuit monitoring, IP address, and topology data
 - Web interface
 - Drives configuration of the monitoring, measurement, management system
 - The database is the hub for all the other tools
 - Monitoring:
 - Based on Nagios
 - Alertmon “big board” software for front-line monitoring
 - Event notifications

- **Q&A**
- **[Small group Discussion Questions](#)**
 -

- **GlobalNOC** - Consider resolution of support from NOC
 - Motion by Ron Cone to recommend Network Nebraska move forward with the purchase of GlobalNOC services as proposed.
 - Seconded by Ben Wilson
 - ESU 1 - yes
 - ESU 2 - yes
 - ESU 3 - yes
 - ESU 4 - yes

- ESU 5 - yes
 - ESU 6 - yes
 - ESU 7 - yes
 - ESU 8 - no
 - ESU 9 - yes
 - ESU 10 - yes
 - ESU 11 - yes
 - ESU 13 - yes
 - ESU 15 - yes
 - ESU 16- Yes
 - ESU 17 - yes
 - ESU 18 - yes
 - ESU 19 -absent
- **15-YES, 1-NO, 1-NOT VOTING; Motion Passes**
- Motion by Ryan McDowell to recommend Network Nebraska discontinue Procera on 6/30/2019 and use funds to pay for GlobalNOC or similar, starting 7/1/2019.
- Seconded by Ben Mientka
 - ESU 1 - yes
 - ESU 2 - yes
 - ESU 3 - yes
 - ESU 4 - yes
 - ESU 5 - yes
 - ESU 6 - yes
 - ESU 7 - yes
 - ESU 8 - no
 - ESU 9 - yes
 - ESU 10 - yes
 - ESU 11 - yes
 - ESU 13 -Yes
 - ESU 15 - yes
 - ESU 16 -yes
 - ESU 17 - yes
 - ESU 18 - no
 - ESU 19 - absent
- **14-YES, 2-NO, 1-NOT VOTING; Motion Passes**

Official IP Assignment Spreadsheet Discussion

- Discuss accepting the new spreadsheet designed by Wade Gibson and Alex Wyatt
- [NE K-12 IP Addressing Beta Nov 2018](#)
- Adoption pending need determination after EIP training tomorrow. (Maybe spreadsheet not necessary)

Network Nebraska

- **IP Routing**
 - Please verify what is routed against what you are assigned.
 - [Official IP Address List](#)
 - [Network Nebraska Routes](#)

- **Efficient IP Training February 28th (Walter Aude)**
 - Agenda
 - Introduction to EIP IPAM
 - Logging into EIP
 - Login accounts
 - Changing passwords
 - Viewing the Networks for Network Nebraska
 - Space
 - Block
 - Subnet
 - Creating subnets
 - How to create a subnet
 - How to create/change to a terminated subnet
 - Users start entering their School data
 - One on one with ESU to determine differences from spreadsheet and routing tables
 - **NOTE:** Please bring your ip/subnet documentation for your schools so that you can begin entering data.

- **Google Admin Console Slowness Discussion (Erik Schmearsal)**

Budget Review

- Fiscal year is September 1st to August 31st.
- [2018-19 NOC Budget](#)
- 2019-2020 NOC budget needs to be submitted by January 2019
 - [2019-20 NOC Budget Proposal](#)
 - Safari subscriptions expire 05/31/19

-

Budget/Training Discussion

- How many Safari or Coursera licenses should be purchased?
- How can we increase usage?

Motion for action on Safari / Coursera / both group licensing:

- Motion by Jim Hopkins
- Second by Brent Pickrel
- Voice Vote - Approved

KSB Q&A for NOC

- Do we attempt to schedule a session in May?
- Possible topic may include template checklist for compliance with FERPA, CIPA, and others
- From April 2018:
 - Motion by Wade Gibson moves that we contact KSB School Law to schedule a Zoom session to discuss legal topics pertaining to the NOC group.
 - Second: Corey Colvin
 - Discussion: We would like the right to record the motion.
 - Jamen Hall moved to amend the previous motion to cap the cost at \$2,500.
- Motion by Corey Colvin to have KSB conduct a Q&A session with a desired date of April 24th. Seconded by Ron Cone
- Vote:
 - ESU 1 - yes
 - ESU 2 - yes
 - ESU 3 - yes
 - ESU 4
 - ESU 5 - yes
 - ESU 6 - yes
 - ESU 7 - yes
 - ESU 8 - yes
 - ESU 9 - yes
 - ESU 10 - yes
 - ESU 11 - yes
 - ESU 13 - yes
 - ESU 15 - yes
 - ESU 16 - yes
 - ESU 17 - yes
 - ESU 18 - yes
 - ESU 19 - absent

ESUCC PDO Calendar:

[2019-2021](#)

SSO/Adviser Update (Scott Isaacson)

- **ADVISER**
 - Dashboard
 - Re-authentication issue resolved in production
 - Work in progress behind the scenes to fix data and display errors
 - Long-term direction is needed
 - Schools seem to want an analytics/dashboard/early warning solution
 - The use cases aren't well defined
 - SIS real-time publishing is ongoing

- Next student data collection closes June 15-30, 2019
- Operational Data Store software being updated for 2019-2020
- **SSO**
 - <https://portal-ex.nebraskacloud.org> is publicly available.
 - ESU data migrated
 - Admin features due this week
 - School data migration next
 - LTI Integration
 - ClassLink and Clever integrations
 - Simplify discovery process - collect email address and pass to ESU identity provider
- **Software Philosophy**
 - **We can work together to build better software more sustainably**
 - Investing in open or our own software builds residual value - we can use and share that software into the future
 - We can also benefit from others doing this (IlliniCloud,)
 - Examples/Successes:
 - SIMPL
 - SIMS
 - SRS
 - Opportunities:
 - SSO
 - Data Analytics/dashboard
 - LMS
 - SIS
 - ...
 - [Slide Presentation](#)

ESUCC Server Hosting Discussion

- Requirements
 - a private internal network(s)
 - SAN storage
 - automatic fail-over capability to mitigate hardware or other hosting environment failure
 - a separate firewall or VDOM administered by ESUCC, including VPN capability for remote access to the environment
- Goals for the project
 - Increase efficiency
 - Transfer the duties of maintaining server hardware away from ESUCC staff
- Questions from ESUs
 - Thoughts on NOC helping to evaluate the proposals?
 - Does the timeline allow enough time to properly implement?
 - What are the differences in disaster recovery?

- Why the significant differences in cost? (hardware build-out was the biggest component)
- Where are each of providers hosted? Is the bandwidth to those locations adequate?
- Questions about HyperV to new VM stack timeline and issues.
- [Proposal summary](#)
- Analysis and Recommendation
 -

Technical Discussion Items

- CAA (Certificate Authority Authorization) - Jamen Hall
 - It is an internet security policy mechanism which allows domain name holders to indicate to certificate authorities whether they are authorized to issue digital certificates for a particular domain name. In a nutshell it allows a school to reduce the likelihood of someone obtaining an unauthorized SSL certificate for your domain. (From Bryan Williams - Norris Public Schools)
 - <https://sslmate.com/caa/> - auto-generate policy
 - Dnsmadeeasy.com supports CAA records. Very easy to implement.
 - <https://centralops.net/co/nslookup.aspx> - Andy Boell
- SSL Verification - <https://www.ssllabs.com/ssltest/index.html>
 - This site will also check DNS CAA status.
- If you organization finds a data breach, what is your procedure for handling the breach? - Jamen Hall
 - Is the Alicap Data Breach Reporting Hotline (24 hours): 855-440-3400 our first call?
 - Has anyone reported a data breach?
- Google API Shutdown - Jamen Hall
 - <https://developers.google.com/+api-shutdown>
- DNS - Ryan McDowell
 - <https://dnsflagday.net/>
 - The main change is that DNS software from vendors named above will interpret timeouts as sign of a network or server problem. Starting February 1st, 2019 there will be **no attempt to disable EDNS** in reaction to a DNS query timeout.
 - This effectively means that all DNS servers which **do not respond at all to EDNS queries** are going to be treated as *dead*.
- MoMo Challenge - Dan
- Forticloud Backup script
 - For this to work you to add your firewalls to forticloud. And then add to each device via CLI.
 - config system central-management

- set mode backup
- set type fortiguard
- end
- config system auto-script
- edit "DailyConfigBackup"
- set interval 86400
- set repeat 0
- set start auto
- set script "execute backup config management-station DailyConfigBackup"
- next
- end

State Wide Listservs

- hscounselors@lists.educationquest.org - Not DMARC compliant
 - Could or should this be hosted by NDE or ESUCC using Google?
 - Google is DMARC compliant
 - Current host is FES
- noc@esucc.org - Does this need to be audited annually?
 - [List of members](#)
 - Should noc@gpcom.com be removed from this group. YES!
 - dfreemanlps@gmail.com - This can be removed.
 - Remove - twenzke@esu10.org
 - Remove - ellsworth@apps.esu7.org
 -
- Are there needs for other state wide listservers?
 - ESU 10 statewide lists - lists.k12.ne.us (recently pruned/migrated to new system)

Collaborative Efforts

- [Software Contract / Purchasing spreadsheet](#)

NOC Group Software Purchases

- PRTG
 - Current agreement expires 06/30/2019
 - Renewal Price - \$19,045.00
- DMarcian
 - Renewed for 1 year through 07/01/19.
 - If you participated in the group purchase you should have received a bill from ESU2.
- ClassLink
 - <https://www.nnnc.org/classlink>

- Future Possibilities?

BOFs

- Fridays at 8:30am to 10:30am
- [Topic Items](#)

Event Review: Valuable takeaways, follow-up with districts

Upcoming Events

- The 2019 Nebraska Cyber Security Conference is October 22, 2019 from 8am to 4pm at Southeast Community College - 8800 O St., Lincoln, NE
- Website: <https://www.southeast.edu/ncsc/>

Motion to Adjourn

- Motion: Brent Pickrel
- Second: Dan Ellsworth

Reports

These will be written, not verbal reports. Neither requests of NOC nor action items should appear here, only informational items. Reporters, please complete your section prior to the meeting so that it may be reviewed by members and questions may be asked at this time.

ESUPDO Workgroups

Liaisons, feel free to provide any relevant updates from your groups

- Educator Effectiveness (Scott Jones, Dustin Buggi)
- MTSS (Gary Needham, Scott Isaacson)
 - Not much of a technical focus going on in this group. I was hoping the group would focus on organization of MTSS data more than the MTSS process, because no one is really doing that. Scott may have other information (--GN)
- Behavioral Mental Health (*Jonathan Becker - ESU 19 - is a NOC liaison*)
- Curricula / Materials (Ron@ ESU 10; Alex Wyatt @ ESU 11)
- Continuous Improvement (Corey Colvin @ESU2, Wade Gibson)
 - *Brad Geise Training @ next PDO May 8-9*
 - *Using Questionnaire Data for Continuous School Improvement*
 - *General discussion of what CIP workgroup hopes to get out of the training*
 - *Discussed follow up questions/zoom meeting(?) to this training*
- Leadership Capacity (Jordan Clark, Ben Anthony)
- Customized Services (Jim Hopkins @ESU1, Dan Ellsworth @ESU7)

- I think Dan can speak to this better than I, but there is a move to get all ESU's to participate in providing a listing of services that they offer to their schools and/or to the state. This list will be used to validate our usefulness to education to our state legislators and stakeholders. If you haven't seen a list of technology services, ask Dan or me. And if you get a request from your administrator, look at the list, choose those things that you are doing as well and then add the things that are unique to your service unit.

NOC Subcommittee

- Hosting and Sustainability

ESUCC (Dave Ludwig and Scott Isaacson)

- **Security**
 - ESUCC is utilizing the DHS NCATS reports to evaluate ongoing security
 - The reports have been very helpful in identifying configuration weaknesses and we have been able to address a number of these
 - Planning to work with DHS for a more extensive assessment in Q3 2019
- **Nebraska Student Privacy Alliance (NSPA)**
 - In Q4 2018, NDE sponsored statewide membership in Student Data Privacy Consortium (nationwide)
 - Initial mission:
 - Establish a community of stakeholders who have various needs addressed through policy, technology and/or effective practice sharing around effective privacy management.
 - Identify projects that have on-the-ground and real world impact on student data privacy enabling schools, districts, state and vendors find resources, adapt them to their unique context and implement needed protections.
 - A core team meets monthly: Dean Folkers, Dan Schnoes, Bill Pulte, Robbie Jensen, Craig Hicks, Kirk Langer, Scott Isaacson, Legal team representatives
 - Near-term goals:
 - Create an NSPA Document (based on the CSPA)
 - Collect samples of "contracts" or TOS sample agreements, amendments SOPIPA -- Consider NDA Agreement language... Rev State Stat 87-801
 - Districts collect and share initial inventory of edtech applications/services already in place (using bulk upload approach)
 - Identify communication and training resources/tools and ensure the language that discusses/shares the broader value for the future.
 - [Nebraska site page established](#)
- **SRS**
 - Soft rollout on new version planned for March 15th (complete software updates)
 - Improvements for ADVISER data publishing are the next priority by the end of the school year for the next data collection deadline in June.
 - Full rollout of new software version to all users July 1

- [Full development timeline document](#)
- [NDE-ESUCC Talking Points](#)

NDE (SuAnn Witt)

- The FCC issued a recommendation to continue the Category 2 Five-year budget process. How that will be managed is yet to be determined by SLD (USAC Schools and Library Division). Below is a copy of the decision:

Recommendations. We recommend that the Commission retain the category two budget approach. Given the improvements that the category two budget approach has shown over the two-in-five rules, the Bureau does not recommend a return to the two-in-five rules approach. The Commission established five-year category two budgets to make funding for internal connections more equitable, predictable, and more broadly available. It did so in recognition of the importance of internal connections, particularly robust Wi-Fi networks, the role they play in enhancing educational opportunities for students and library patrons, and the potential for these networks to close the digital divide. The Bureau's review of the data from the first five-year category two budget cycle shows that the Commission's goals in creating these budgets have largely been met.

Further, we recommend that the Commission consider some targeted changes to the budgets moving forward such as an increase in the funding floor, to the extent that it finds that insufficient funding is deterring entities at the funding floor and rural libraries from participating. These recommendations are supported by the data the Bureau reviewed and are also consistent with the Public Notice comments.

Network Nebraska-Education (Office of the CIO - Tom Rolfes)

- We're proceeding with the transfer of ownership of fiber circuits that connect to Network Nebraska. ESUs 1, 2, 7, 8, 10, 11, 17 are filing E-rate Forms 471 under the Office of the CIO BEN 225870 and about 50% are already filed.
- RFP 6004 opened on February 15 with 12 bidders bidding on 45 circuits. Intents to Award will be issued yet this week.
- The Northeast Nebraska backbone extension project will be issued as an RFP as early as July 1, 2019.
- The rebid of the 300+ fiber WAN circuits in ESUs 1, 2, 7, 8, 9, 10, 11, 13, 15, 16, 17 could occur as early as September 1, 2019.
- WHAT IS NETWORK NEBRASKA?
- **N.R.S. 86-5,100. Network Nebraska; development and maintenance; access; Chief Information Officer; duties; cost; report. (excerpt)**
 - The Chief Information Officer, in partnership with the University of Nebraska, shall develop and maintain a statewide, multipurpose, high capacity, scalable telecommunications network to be called Network Nebraska.

- The network shall consist of contractual arrangements with providers to meet the demand of state agencies, local governments, and educational entities as defined in section [79-1201.01](#).
- Such network shall provide access to a reliable and affordable infrastructure capable of carrying a spectrum of services and applications, including distance education, across the state.
- The Chief Information Officer shall provide access to each school district, each educational service unit, each community college, each state college, and the University of Nebraska at the earliest feasible date and no later than July 1, 2012.
- Access may be provided through educational service units or other aggregation points.

NITC Ed Council (Gary Needham)

- February meeting was cancelled due to weather. Building a membership/participant survey right now. The last survey was conducted in 2011 and was focused on “marketing.” This one is focused more on member satisfaction and felt needs.
- [Meeting Archive](#)

[NNAG](#) - Network Nebraska-Education Advisory Group (Ron Cone)

- Feb 11, 2019 meeting -
 - Review of projected NN Internet purchases
 - Presentation by GlobalNOC, discussion of possible cost recovery options

Network Nebraska Support Staff (Erik Schmersal)

-

PDO Affiliates

-

TLT (Wade Gibson)

-

SDA

-

ESUPDO (Gary Needham)

-

2018-19 Events

Sept 24	Rural Broadband Task Force	@ Varner Hall, Lincoln
Sept 27	Nebraska State Security Conference	@ SECC Lincoln
Sept 28	DHS Security Workshop	@ Doane Lincoln
Oct 3	NDE / ESUCC Collaboration	@ LPS Admin (Lincoln)
Nov 1-2	Fall NETA	@ Younes Kearney
November 6-8	NOC meeting (6) & training (7-8)	@ ESU 2 (Fremont)
Jan 16-17, 2019	ESUPDO	@ ESU 10 (Kearney)
Feb 27-28	NOC Meeting (27) & training (28)	@ ESU 16 (North Platte)
March 27	NETA Technology Bus Tour	@ TBD Omaha
March 28-29	NETA	@ CHI Health Ctr Omaha
April 3	NDE / ESUCC Collaboration	@ LPS Admin (Lincoln)
April 24	NOC Meeting	@ ESU 11 (Holdrege).
May 8-9	ESUPDO	@ ESU 10 (Kearney)

Third Wednesday of odd-numbered months: [NNAG](#)

Third Wednesday of even-numbered months: [NITC Ed Council](#)

Friday [BoFs](#) starting November 16th

AGREEMENT FOR ESUCC SERVER HOSTING

THIS AGREEMENT is entered into by and between the Nebraska Educational Service Unit Coordinating Council ("ESUCC"), and Educational Service Unit 3 ("Contractor").

In consideration of mutual covenants, the parties agree as follows:

- 1. Scope of the Contract.** The Contractor shall provide to the ESUCC the goods and/or services as defined in **Exhibit A** which is attached hereto and incorporated herein by this reference.
- 2. Payment Terms/Payment Schedule.** The ESUCC shall pay for services rendered and for accepted goods on the terms and payment schedule as set forth in **Exhibit B** which is attached hereto and incorporated herein by this reference.
- 3. Term.** This Agreement is effective on the 1st day of May, 2019 ("Effective Date") and shall continue until 12:00 midnight (CST) on the 31st day of August, 2022, unless terminated earlier as provided by this Agreement or by law.
- 4. Governing Law; Designation of Forum.** This Agreement is governed by and construed in accordance with the laws of the State of Nebraska. Any action to enforce this Agreement must be brought in the state or federal courts of the State of Nebraska. Mandatory and exclusive venue for any disputes shall be in Douglas County, Nebraska.
- 5. Termination.**
 - A. The ESUCC may terminate this Agreement in whole or part if funding from federal, state, or other sources is not obtained and continued at levels sufficient to allow for purchase of the good and/or services in the indicated quantities or term. The ESUCC shall notify the Contractor as soon as practicable if funds to meet the ESUCC's obligations become unavailable. The determination of the ESUCC as to the insufficiency of funds is conclusive.
 - B. Each party may terminate this Agreement if the other party breaches or is in default of any material obligation hereunder which default is incapable of cure, or which, being capable of cure, has not been cured within 30 days after receipt of written notice of such default or such additional cure period as the

nondefaulting party may authorize in writing.

- C. Each party may terminate this Agreement by written notice if federal or state laws or rules are modified or interpreted in a way that the services are no longer allowable or appropriate for purchase under this contract or are no longer eligible for the funding proposed for payments authorized by this contract.
- D. The ESUCC may terminate this Agreement, in whole or in part, by written notice to the Contractor and may regard the Contractor in default of this Agreement if the Contractor becomes:
 - (1) Insolvent;
 - (2) Makes a general assignment for the benefit of creditors;
 - (3) Files a voluntary petition of bankruptcy;
 - (4) Suffers or permits the appointment of a receiver for its business or assets;
 - (5) Becomes subject to any proceeding under any bankruptcy or insolvency law, whether domestic or foreign; or
 - (6) Has wound up or liquidated, voluntarily or otherwise.
- E. The ESUCC may terminate this Agreement, in whole or in part, immediately, without notice, if the Contractor is debarred or suspended from performing services on any public contracts.
- F. The parties may terminate this Agreement without cause by mutual written consent.
- G. Upon the termination for any reason or expiration of this Agreement, the Contractor promptly must return to the ESUCC all papers, materials and other property of the ESUCC then in its possession, including but not limited to all work in progress as is appropriate in its then existing form to the ESUCC.

6. Indemnification.

- A. The Contractor hereby waives and agrees to indemnify and save harmless the ESUCC and its officials, agents, employees, and volunteers (hereinafter collectively referred to as "Indemnities"), against any and all claims of injuries, death, damage to property, liabilities, judgments, costs and expenses which may otherwise accrue against Indemnities in consequence of the

granting of this Agreement or which may otherwise result therefrom.

- B. The Contractor shall, at his or her own expense, appear, defend and pay all charges of attorneys and all costs and other expenses arising therefrom or incurred in connection therewith.
- C. If any judgment shall be rendered against the ESUCC in any such action, the Contractor shall, at his or her own expense, satisfy and discharge the same.
- D. Any performance bond or insurance protection required by this contract, or otherwise provided by the Contractor, shall in no way limit the responsibility to indemnify and save harmless and defend the Indemnities as herein provided.
- E. The Contractor's obligation to indemnify and save harmless any Indemnities will survive the expiration or termination of this Agreement by either party for any reason.

7. Insurance. Contractor shall secure and keep in force during the term of this Agreement the following insurance coverages from insurance companies or government self-insurance pools authorized to do business in Nebraska:

- A. Commercial general liability, including premises or operations, contractual, and products or completed operations coverages (if applicable), with minimum liability limits of \$1,000,000 per person and \$5,000,000 per occurrence.
- B. Automobile liability, including Owned (if any), Hired, and Non-Owned automobiles, with minimum liability limits of \$1,000,000 per person and \$5,000,000 per occurrence.
- C. Workers compensation coverage meeting all statutory requirements.

The insurance coverages listed above must meet the following additional requirements:

- 1) Any deductible or other similar obligation under the policies shall be the sole responsibility of the Contractor. The amount of any deductible is subject to approval by the ESUCC.
- 2) This insurance may be in policy or policies of insurance, primary and excess, including the so-called umbrella or catastrophe form and must be placed with insurers rated

"A-" or better by A.M. Best Company, Inc., provided any excess policy follows form for coverage Less than an "A-" rating must be approved by the ESUCC. The policies shall be in form and terms approved by the ESUCC.

- 3) The insurance required in this agreement, through a policy or endorsement, shall include a provision that the policy and endorsements may not be canceled or modified without thirty (30) days' prior written notice to the undersigned ESUCC representative.
- 4) The Contractor shall furnish a certificate of insurance to the undersigned ESUCC representative prior to commencement of this Agreement.
- 5) Failure to provide insurance as required in this agreement is a material breach of contract entitling the ESUCC to terminate this Agreement immediately.

8. Public Records. The Contractor acknowledges that the ESUCC must comply with NEB. REV. STAT. § 84-712 through § 84-713 and release public records as defined law upon request, which may include this Agreement and all records created and maintained in relation to this Agreement.

9. Publicity. The ESUCC does not endorse the goods or services of the Contractor. Except for listing the ESUCC as a client during the term of this Agreement, news releases or other publicity concerning this Agreement must not be made by the Contractor without the prior written approval of the ESUCC.

10. Drug/Alcohol/Tobacco/Weapons Free Workplace. The Contractor and all Subcontractors, if any, shall not manufacture, sell, distribute, dispense, possess or use controlled substances or marijuana, as defined by Nebraska law, during the performance of this Agreement while on ESUCC premises or at ESUCC related functions. The Contractor and all Subcontractors, if any, shall not possess any weapon, as defined by Nebraska law and the federal "Drug-Free Schools Act," on ESUCC property or at ESUCC related functions. The Contractor and all Subcontractors, if any, also shall adhere to all ESUCC's policies and regulations that prohibit the possession, distribution, sale, dispensation, or use of any alcohol or tobacco products while on ESUCC premises or at ESUCC related functions. Failure to comply with this provision may be considered a material breach. The ESUCC may suspend or terminate the Contractor, Subcontractor, or both if it violates these laws, regulations, or policies or this provision.

- 11. Nondiscrimination.** The Contractor and all Subcontractors, if any, shall not discriminate against any employee or applicant who is to be employed for performance of this Agreement with respect to his or her hire, tenure, terms, conditions, or privileges of employment, because of his race, color, religion, sex, disability, or national origin.
- 12. Independent Contractor.** Contractor is an independent contractor under this contract and is not a ESUCC employee for any purpose. The Contractor retains sole and absolute discretion in the manner and means of carrying out Contractor's activities and responsibilities under this Agreement, except to the extent specified in this Agreement.
- 13. Employment Eligibility Verification.** The Contractor shall use a federal immigration verification system to determine the work eligibility status of employees hired on or after October 1, 2009 and who are physically performing services within the State of Nebraska. If the Contractor employs or contracts with any Subcontractor in connection with this Agreement, the Contractor shall include a provision in the contract requiring the Subcontractor to use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.
- 14. Taxpayer Identification.** Contractor's federal employer identification number is: _____.
- 15. Sales Tax.** The ESUCC is exempt from sales tax and shall not pay any sales tax under this Agreement. The ESUCC will provide the Contractor with applicable sales tax exemption certificates upon written request.
- 16. Notice.** Each party giving any Notice ("Notice") under this Agreement must give written Notice by personal delivery, registered or certified Mail (in each case, return receipt requested and postage prepaid), or nationally recognized overnight courier (with all fees prepaid.) Notice shall be sent to the following addressees at the following addresses:

ESUCC: Educational Service Unit Coordinating Council
Attn: Executive Director
6949 South 110th Street
LaVista, NE 68128

With copy to:

Steve Williams, Legal Counsel

KSB School Law, PC, LLO
301 S. 13th, Suite 210
Lincoln, NE 68508

Contractor: _____

Notice is effective only if the party giving the Notice has complied with this section.

17. Entire Agreement. The Agreement is the complete and exclusive expression of the parties' agreement on the matters contained in this Agreement. All prior and contemporaneous negotiations and agreements between the parties on the matters contained in this Agreement are expressly merged into and superseded by this Agreement.

18. Order of Preference.

In the case of any inconsistency or conflict among the specific provisions of this Agreement (including any amendments accepted by both the ESUCC and the Contractor attached hereto), the RFP (including any subsequent addenda) (Exhibit C), and Contractor's Response (Exhibit D), any inconsistency or conflict shall be resolved as follows:

- A. First, by giving preference to the specific provisions of this Agreement, any accepted amendments, Exhibit A and Exhibit B;
- B. Second, by giving preference to the specific provisions of the RFP, Exhibit C;
- C. Third, by giving preference to the specific provisions of Contractor's Response, Exhibit D, except that objections or amendments by a Contractor that have not been explicitly accepted by the ESUCC in writing shall not be included in this Agreement and shall be given no weight or consideration.

19. Amendments and Modifications. The parties may amend or modify this Agreement only by a signed, written agreement by both parties that identifies itself as an amendment or modification to this Agreement. No other alternations in the terms of this agreement shall be valid or binding.

20. Waivers.

- A. The parties may waive any provision in this Agreement only by a writing executed by the party or parties against whom the waiver is sought to be enforced.
- B. No failure or delay:
 - (1) In exercising any right or remedy, **or**
 - (2) In requiring the satisfaction of any condition under this Agreement, **and**
 - (3) No act, omission, or course of dealing between the parties operates as a waiver or estoppel of any right, remedy or condition shall constitute a waiver or estoppel of any right, remedy or condition.
- C. A waiver made in writing on one occasion is effective only in that instance and only for the purpose stated. A waiver once given is not to be construed as a waiver on any future occasion or against any other Person.

21. Severability. If any provision of this Agreement is determined to be unenforceable, the remaining provisions of this Agreement remain in full force, if the essential terms and conditions of this Agreement for each party remain enforceable.

22. Counterparts. The parties may execute this Agreement in multiple counterparts, each of which constitutes an original, and all of which, collectively, constitute only one agreement. The signatures of all of the parties need not appear on the same counterpart, and delivery of an executed counterpart signature page by facsimile or other electronic means is as effective as executing and delivering this Agreement in the presence of the other parties to this Agreement. This Agreement is effective upon delivery of one executed counterpart from each party to the other parties. In proving this Agreement, a party must produce or account only for the executed counterpart of the party to be charged.

23. Force Majeure. Neither party shall be liable for any loss or damage suffered by the other party, directly or indirectly, as a result of the non performing party's failure to perform, or delay in performing, any of its obligations contained in this contract (except any obligations to make payments for services rendered or accepted goods received before the failure to perform or the delay in performance), where, in the opinion

of the ESUCC, such failure or delay is caused by circumstances beyond the non performing party's control or which make performance commercially impracticable, including but not limited to fire, flood, storm or other natural disaster, explosion, accident, war, riot, civil disorder, government regulations or restrictions of any kind or any acts of any government, alien enemy, judicial action, power failure, acts of God, or other natural circumstances. This Force Majeure provision excludes economic hardship, changes in market conditions, and insufficiency of funds on the part of Contractor.

- 24. Assignment.** This Agreement binds the parties and their respective successors and assignees. The Contractor shall not assign or otherwise dispose of this Agreement or any duty, right, or responsibility contemplated in this Agreement to any other person without the previous written consent of the ESUCC.
- 25. Subcontractors.** The Contractor shall not subcontract services or any part of this Agreement without the prior written consent of the ESUCC.
- 26. Third Party Beneficiaries.** This Agreement does not and is not intended to confer any rights or remedies upon any person other than the signatories.
- 27. Captions.** The descriptive headings of the Articles, Sections and subsections of this Agreement are for convenience only, do not constitute a part of this Agreement, and do not affect this Agreement's construction or interpretation.
- 28. Rights and Remedies Cumulative.** Any enumeration of the ESUCC's rights and remedies set forth in this Agreement is not exhaustive. The ESUCC's exercise of any right or remedy under this Agreement does not preclude the exercise of any other right or remedy. All of the ESUCC's rights and remedies are cumulative and are in addition to any other right or remedy set forth in this Agreement, any other agreement between the parties, or which may now or subsequently exist at law or in equity, by statute or otherwise.
- 29. Time is of the Essence.** Time is of the essence with regard to performance of any services under this Agreement, unless the parties agree otherwise in writing.
- 30. Relationship Among Parties.** This Agreement creates no relationship of joint venture, partnership, limited partnership, agency, or employer- employee between the parties, and the parties acknowledge that no other facts or relations exist that would create

any such relationship between them. Neither party has any right or authority to assume or to create any obligation or responsibility on behalf of the other party except as my from time to time be provided by written instrument signed by both parties.

31. Rules of Construction. The parties hereto have each been represented by counsel, or had the opportunity to be represented, during the negotiation and execution of this Agreement, and therefore waive application of any law or rule of construction providing that ambiguities in the contract will be construed against the party drafting such contract.

32. Warranties and Maintenance. The Contractor shall provide to the District the warranties and maintenance as set forth in **Exhibit E**.

33. Attachments. Attachments to this Agreement include the following:

- Exhibit A – Scope of Good or Services to be provided to ESUCC
- Exhibit B – Payment Terms & Schedule
- Exhibit C – Request for Proposal or Invitation for Bids (“RFP”)
- Exhibit D – Contractors Proposal or Bid
- Exhibit E – Warranties and Maintenance

IN WITNESS WHEREOF the parties have executed this Agreement on the date last date written below.

[THE NEXT PAGE IS THE SIGNATURE PAGE]

ESUCC

By: _____

Name: _____

Title: _____

Date: _____

CONTRACTOR

By: _____

Name: _____

Title: _____

Date: _____

EXHIBIT "A"

SCOPE OF GOODS OR SERVICES TO BE PROVIDED TO ESUCC

Contractor will provide to ESUCC:

- Hosting for up to 85 virtual machines, a combination of Windows server and Linux, with network, RAM, CPU and disk storage resources in proportion to the current environment specifications provider to Contractor. Hosting server hardware will be 5 years of age or newer and appropriately maintained. The current environment environment specifications are for 74 virtual machines:
 - 268 virtual CPUs
 - 1.1 TB of RAM
 - 23TB of disk storage
 - 1 Gbps or higher connectivity between virtual machines and to Network Nebraska and the Internet
- 2 Private internal VLANs
- 1 Public, routable IP network with a /24 netmask
- SAN storage
- A separate firewall or VDOM administered by ESUCC, including VPN capability for remote access to the environment
- Best-practice physical, electronic and software security and access controls protecting the hosting environment and prompt response to any identified vulnerabilities.
- Best-effort recovery capability in the event of a system failure or outage, in the same manner as contractor would treat its own hosted services.
- On-call contact information with emergency response 24 hrs per day, 7 days per week, 365 days per year.

ESUCC will continue to provide:

- Microsoft licensing for ESUCC VMs and software usage
- Operating system and application maintenance on the VMs
- Network addressing
- Firewall administration
- Backup administration - ESUCC will provide a 2U physical backup server which will be hosted on-site with the VM hosting environment and will continue to maintain its own offsite backup server

EXHIBIT "B"

1. Payment Terms/ Payment Schedule

- A. The ESUCC will pay for the goods and/or services identified in Exhibit A and provided by Contractor under this Agreement as follows:
- \$25,000 on May 1, 2019
 - \$12,429 on May 1, 2020
 - \$12,248 on May 1, 2021
- B. The ESUCC agrees to pay Contractor for all undisputed amounts within thirty (30) days of receipt of invoice, provided that services have been accepted by the ESUCC as hereinafter provided.
- C. The procedure for billing and payment for services or products and deliverables shall be as specified in this exhibit.

2. Acceptance of Services or Products:

- A. The Contractor shall deliver any goods, perform any services or both in accordance with the schedule set forth in the RFP, the time specified in a purchase order issued by the ESUCC, or this Agreement (whichever is later).
- B. Unless otherwise agreed to by the parties, the Contractor shall provide written notification of completion of any deliveries, or performances of services or both, to the ESUCC ("Delivery Notice").
- C. The ESUCC shall have thirty (30) days from the date of receipt of the Delivery Notice to provide the Contractor with written notification of acceptance or rejection due to unsatisfactory performance or nonconforming goods.
- D. If the ESUCC issues a rejection notice, the Contractor shall as quickly as is practicable, correct or replace all deficiencies at its expense. The ESUCC shall not unreasonably withhold or delay its acceptance or rejection.

3. Title and Risk of Loss:

- A. Title and risk of loss for goods shall remain with the Contractor until goods are accepted by the ESUCC.
- B. Insurance during shipment and until the goods are accepted by the ESUCC is the responsibility of the

Contractor.

EXHIBIT "C"

Request for Proposal

At the direction of the ESUCC Technology Committee from its January meeting, I am writing to every ESU to determine if you are interested in providing hosting services to the ESUCC and then, if so, to collect information from you on the costs and other details of your proposed hosting plan. To begin, here are some basic characteristics of our current environment:

We are hosting 74 virtual machines (VMs), about 2/3 of which are Windows and 1/3 Linux. There are a total of 268 virtual CPUs, 1.1 TB of RAM, and 23TB of disk storage allocated to these VMs. The current physical hosts are running Windows Hyper-V on Windows Server 2012 R2.

This internal evaluation process will lead me to prepare recommendations for the ESUCC Technology Committee and full board who will consider approving a contract between the ESUCC and an ESU for hosting services.

Because this is a new operating model for the ESUCC, this is a first step in what may be a progression to additional services in the future. For 2019-2020, ESUCC is seeking a VM hosting environment which includes:

- a private internal network(s)
- SAN storage
- automatic fail-over capability to mitigate hardware or other hosting environment failure
- a separate firewall or VDOM administered by ESUCC, including VPN capability for remote access to the environment
- ESUCC will continue to provide:
 - Microsoft licensing for ESUCC VMs and software usage
 - operating system and application maintenance on the VMs
 - network addressing
 - firewall administration
 - backup administration - We have a 2U physical server which will need to be hosted on-site with the VM hosting environment to provide backup services and we'll continue to maintain an offsite backup server

The services hosted in this environment are considered mission-critical to many (ADVISER data system, SRS, single sign-on framework), so it's

important that the ESU providing hosting services will support the environment accordingly and respond to outages or other service-impacting problems at any time (on-call) and communicate and coordinate with ESUCC to resolve problems as quickly as possible. Performance and reliability are also important, and the environment should be hosted using "modern" server and network hardware, 5 years old or newer and maintained appropriately. Resource requirements have remained stable. However, the hosting environment should include planning for limited (10%) expansion as needs and projects may change as well as sufficient capacity to maintain most or all services during a partial hardware failure event.

Preparation for the move will start as soon as a decision is made and a contract is approved by the ESUCC board. The migration of VMs will start no earlier than June 1, 2019 and finish before July 31, 2019.

If your ESU is interested in serving this need, please start by contacting me before January 31st to arrange a time when we can discuss the details and any questions you may have.

Thank you.

Scott

Scott Isaacson

Technology Director

Educational Service Unit Coordinating Council

6949 South 110th Street

Omaha, Nebraska 68128

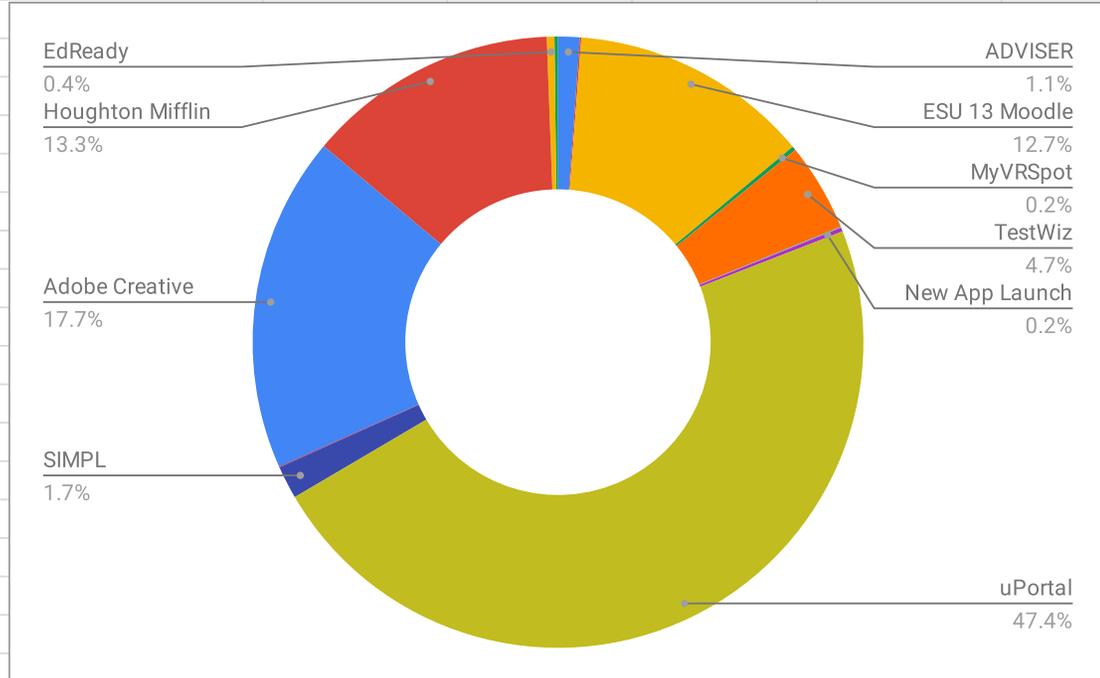
402-597-4866

sisaacson@esucc.org

SSO Sessions by Application

Feb. 4 - Mar. 4, 2019

Application	Sessions
ADVISER Dashboard	229
ESU 13 Impact	16
ESU 13 Moodle	2548
MyVRSpot	43
TestWiz	934
NVIS	9
New App Launch Portal	43
uPortal	9494
SIMPL	349
TestWiz	
SAS Curriculum Pathways	2
ESUPDO Registration	8
Adobe Creative Cloud	3552
Houghton Mifflin Harcourt	2668
EdReady	81
OER Commons	37

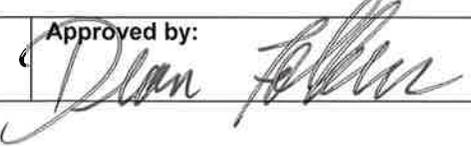


**NEBRASKA DEPARTMENT OF EDUCATION (NDE)
301 Centennial Mall South
Lincoln, NE 68509-4987**

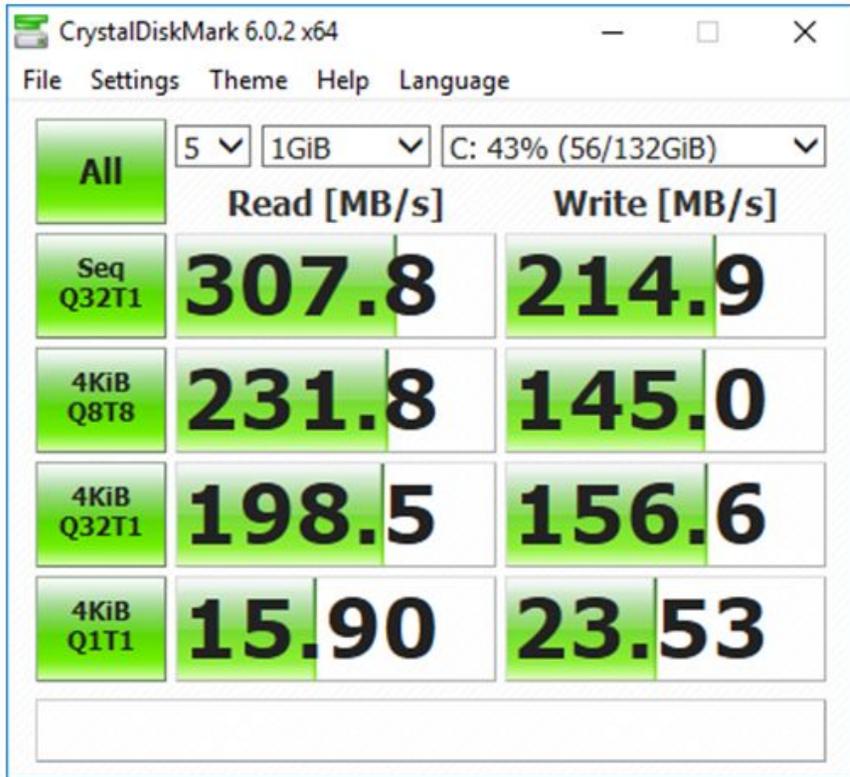
Amended

GRANT AWARD NOTIFICATION (GAN)

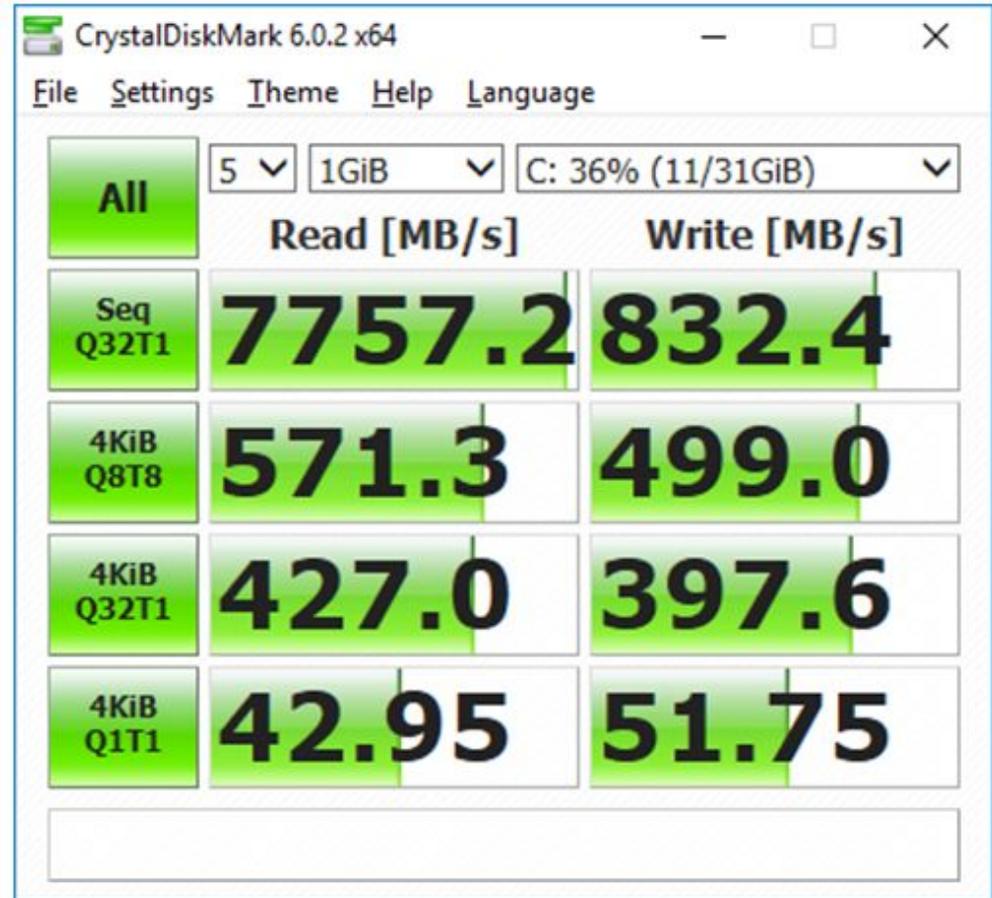
Approved Date: 2/15/2019

<p>Name and Address of Grantee (Subrecipient Agency):</p> <p>David M. Ludwig Educational Service Unit Coordinating Council 6949 So. 110th Street LaVista, NE 68128</p> <p>Address Book Number: <u>1502400</u></p> <p>Federal Tax ID#: 26 2415220</p>	<p>NDE Program Contact /Phone Number / Email: Dean Folkers 301 Centennial Mall South Lincoln, NE 68509 402-471-4740 Dean.folkers@nebraska.gov</p> <p>NDE Payments Contact / Phone Number / Email: Linda Kamble 301 Centennial Mall South PO Box 94987 Lincoln, NE 68509 Linda.Kamble@nebraska.gov</p>		
<p>Amount of Grant: <u>\$1,640,839</u></p> <p>YEAR 1 Budget <u>\$224,000</u> Year 2 Budget <u>\$711,069</u> Year 3 Budget <u>\$705,770</u></p>	<p>Grant Award Period: From: February 3, 2017 To: December 31, 2019 <u>State FY 02/03/2017-06/30/2017</u> <u>State FY 07/01/2017-06/30/2018</u> <u>State FY 07/01/2018-12/31/2019</u></p>		
<p>Program Title : Nebraska Innovation Grant Program</p>			
<p>Source: Nebraska Lottery Proceeds</p>			
<p>Project Number: <u>2017</u></p>			
<p>Terms and Conditions of Award</p>			
<p>A. This Grant shall be in effect for the designated period of the Grant award (Grant Period) unless otherwise terminated or suspended by NDE at any time.</p> <p>B. Program and fiscal reports will be completed and submitted as required and shall report grant activities in accordance with the approved application and budget as required by NDE.</p> <p>C. Amendments must be agreed to by the Grantee and NDE and documented by NDE and an amended Grant Award provided to the grantee</p> <p>D. The obligation period of the Grant is identified in Grant Award Period above. Obligations cannot be made prior to or after this Grant Period. All obligations should be liquidated within 45 days after ending date of Grant. At the completion of the grant period, a final request for funds accompanied by the final report of expenditures must be submitted to NDE with proper documentation not later than 60 days after the last day of the grant period.</p> <p>E. Funding requests will be documented as required using a Report of Expenditures (NDE 28-003) according to procedures identified in application process. This form is found on the NDE website: http://www.education.ne.gov/FOS/Forms/index.html.</p> <p>F. Properly detailed documentation specifying the grant expenditures must accompany all requests for reimbursement. (e.g., computer printouts, system generated documentation, etc.)</p> <p>G. If grant funds are not expended in accordance with the grant award, the Department may require that all grant funds or any portion thereof be returned by a means to be determined by NDE.</p> <p>H. Records will be maintained for equipment acquired and the equipment will remain under the administrative control of the grantee.</p> <p>I. The Secretary of State Record Retention Schedules are applicable to records retention, except that all grant records shall be maintained for at least five (5) years following the end of the grant period. The Secretary of State Record Retention Schedule 124 is applicable to records retention.</p> <p>J. The grantee assures NDE that the project will be conducted in accordance with state statutes and regulations as identified in the Statement of Assurances.</p> <p>K. Total funding is contingent upon availability of appropriated funds by the Nebraska legislature.</p> <p>L. Additional terms and conditions are attached.</p>			
<p>NDE Approvals</p>			
<p>Approved by: </p>	<p>Date: <u>2/19/19</u></p>	<p>Approved by: </p>	<p>Date: <u>2/15/19</u></p>

For a base comparison, here is the performance of local storage via SSD RAID 1 on a database server



And here is the performance of Ceph, via the Kernel RBD Driver via Proxmox





2019-20 MSA: Instructional Materials Suggest Revisions

On February 12, a group with representatives from the ESUCC Technology Committee, TLT affiliate and ESUCC staff met to review the Instructional Materials portion of the MSA. The suggested updates were added to the draft MSA 2019-20 for review.

- Fees for BlendEd Initiative – increase from \$5,400 to \$5,500 (reason: to help to cover costs for the OER Annual Service Plan)
- Media on Demand – update to new subscription plan and estimated costs
- LOR – update to include information on current platforms in use, OER information moved from the New Acquisition section to this section – no fees identified
- Special Projects - update for clarity and add using the funds for promotion and awareness of existing instructional resources and for curation and creation of resources. Also, add \$500 to this category. Total \$5,000 per ESU. Clarify that fees are only invoiced when actual cost incurred.
- Learning Objects Acquisitions – update for clarity and add using the funds for promotion and awareness of existing instructional resources. Total \$5,000 per ESU. Clarify that fees are only invoiced when actual cost incurred.

Hosting Cost Analysis

	As Is	With ESU 3	With ESU 5	With ESU 10	AWS	Notes
Staffing	\$25,000	\$15,000	\$15,000	\$15,000	\$15,000	fractional salary and benefits for system admin (currently Scott & Mike)
Hardware	\$25,000	\$0	\$0	\$0	\$0	\$75,000 hardware investment / 3 year lifecycle
Software	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$33,000 licensing investment / 3 year lifecycle
Data Center	\$7,536	\$0	\$0	\$0	\$0	1 full rack at Nebraska Hall
Hosting	\$0	\$16,619	\$60,000	\$47,750	\$109,366	Combined hosting with an ESU
Backup/DR	\$15,000	\$15,000	\$0	\$0	\$15,000	We bring our Commvault to ESU 3, or included with ESU 5, 10
Second Site	\$2,500	\$360	\$0	\$0	\$0	ESU 3 OR Nebraska Hall (2U)
Total Annual	\$86,036	\$57,979	\$86,000	\$73,750	\$150,366	annual rates are calculated based on a 3-year contract
Transition Cost (one-time)		\$10,000	\$10,000	\$0	\$10,000	
Prepared February, 2019						
				ESU 10 Storage preformance		

SRS Development Timeline

January To March 15

- Complete ZF3

February 15

- Recruit beta testers

March 15

- Meet with ESUCC Legal Counsel and NDE Reps regarding access to validation data (as reflected in the data ecosystem policies)

March 1 to March 15

- Hold series of zoom sessions to highlight the new features on the site. We should also create some video tutorials etc.

March 15 to July 1

- Beta Testing on SRS
- Districts and Users will be allowed to use the new system and provide feedback
- Collect Feedback through JitBit

March 15 to May 15

- Focus on completing ADVISER Projects
- Address the list of ADVISER improvements
- We have 30 action items to complete

March 15

- Demo new site for IlliniCloud

Early May - Meeting with NDE staff regarding rule change schedule

- Update NDE on what SRS changes to date

- Request no validation changes after May 1

July 1

- Rollout ZF3 SRS Site

July 1 to August 15

- Develop Help Desk tutorial videos

August 15 - September 15

- SRS Update Trainings at ESUs

September 1

- Address SRS user suggestion backlog

September 15 - October 30

- Prepare for next ADVISER upload period

Action Items

- Complete Archiving and user interface
- Meet with Legal Counsel for individual student file retention
- Develop policies and procedures for import/export systems
- Develop plan for future enhancements and expansions
 - SAT, 504, MTSS
 - Develop a plan for expansion outside of Nebraska
 - Discussion on open source licensing
 - Involve Legal Counsel
- Dialog regarding the Fee structure
- API Integration with Nebraska SISs (PS, IC, SIMS)

SSO Sessions by Date				
Date	Sessions			
1/7/19	1621			
1/8/19	1650			
1/9/19	1757			
1/10/2019	1764			
1/11/2019	1913			
1/12/2019	69			
1/13/2019	244			
1/14/2019	1489			
1/15/2019	1393			
1/16/2019	1679			
1/17/2019	1588			
1/18/2019	968			
1/19/2019	105			
1/20/2019	194			
1/21/2019	1164			
1/22/2019	909			
1/23/2019	1057			
1/24/2019	1138			
1/25/2019	1838			
1/26/2019	78			
1/27/2019	163			
1/28/2019	1232			
1/29/2019	1641			
1/30/2019	1338			
1/31/2019	1604			
2/1/2019	1446			
2/2/2019	65			
2/3/2019	151			
2/4/2019	1556	1464	average per school day to-date	
2/5/2019	941			
2/6/2019	1267			
2/7/2019	864			
2/8/2019	1241			
2/9/2019	87			
2/10/2019	139			
2/11/2019	1312			
2/12/2019	1438			
2/13/2019	1320			
2/14/2019	1059			
2/15/2019	690			

2/16/2019	68			
2/17/2019	142			
2/18/2019	524			
2/19/2019	1528			
2/20/2019	1193			
2/21/2019	1594			
2/22/2019	1405			
2/23/2019	96			
2/24/2019	232			
2/25/2019	1352			
2/26/2019	1419			
2/27/2019	1613			
2/28/2019	998			
3/1/2019	857			
3/2/2019	63			
3/3/2019	162			
3/4/2019	1529	1339	average per school day to-date	

ESUCC Hosting

Requested Hosting Resources		GB
KVM Compute	* RU = 2 vCPUs & 2 GB RAM	1100
Ceph Storage	* RU = 20 GB	23000

Staff Support

Annual Support	
One-Time support for Migration	

Proposal

*RU	Cost per RU	Total
550	\$45.00	\$ 24,750.00
1150	\$20.00	\$ 23,000.00
		\$ 47,750.00
		\$ 15,000.00
		\$ -
		\$ 15,000.00
		\$ 62,750.00

Support and Partnership for Education Data System Study II

Background

In 2013, the Nebraska Legislature requested a Legislative Study on the Education Data Systems.

The purpose of this resolution is to examine the education data system. The study shall include an assessment of the adequacy of the current data system maintained by the State Department of Education to provide timely access to relevant and accurate data to meet various needs, including information for teachers in public schools about student achievement in their classrooms, objective research regarding educational practices, data for policy formation and review, and accountability to the public regarding the performance of the public schools.

The resulting study, released in 2014, provided an analysis of the systems and provided 10 key recommendations, budget, and approaches to achieve the work. <https://www.education.ne.gov/wp-content/uploads/2017/07/NEDataSystemsLegislativeStudyLoRes.pdf>

The report served as a basis for planning and operationalizing the work over the past five years, including modernization of data collection and reporting, implementation of single sign on federation, use of open standards, and many additional enhancements.

Partners in the original study included: Educational Service Unit Coordinating Council, Nebraska School Administrators, Nebraska State Education Association, and input from the Nebraska Educational Technology Association members.

Study Revisited

The proposed work is to replicate the study, but from two perspectives.

- 1) A *retrospective evaluation* of the work that was proposed and now has been accomplished, including estimates of return on investment, areas that still need addressed, and the general response of the education community to the work.
- 2) A *review and analysis* of the current state and identification of the next set of priorities, projects, or initiatives to further the goals of efficiency, effectiveness, and broader interoperability to support teaching and learning in Nebraska.

Request for Partnership

NDE is requesting consideration to partner on the study and would include any of the following:

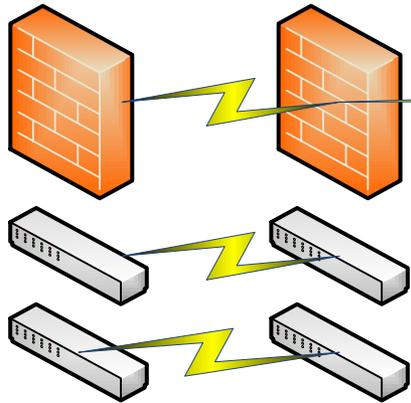
1. Promoting surveys, interview, or focus group participation of membership.
2. Providing insights and topics for consideration.
3. Review and validation of the study,
4. Co-Branding the participation in the efforts of the study.
5. Other activities that support the comprehensive completion of the study.

Additional questions to Dean Folkers at dean.folkers@nebraska.gov

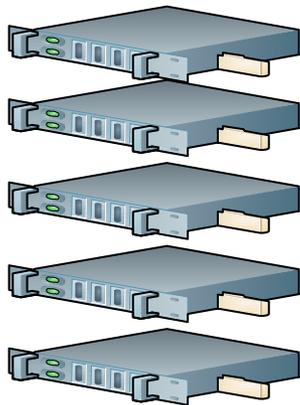
PowerEdge R740 Server

PowerEdge R740/R740XD Motherboard
Module,Shipping Material,R740,NOCCC,Dell Americas Organization
Intel Xeon Gold 5118 2.3G, 12C/24T, 10.4GT/s , 16.5M Cache, Turbo, HT
(105W) DDR4-2400, Qty 2
HS Install Kit,GPU Config, EPS12V Cable
2666MT/s RDIMMs
Diskless Configuration (No RAID, No Controller)
iDRAC Group Manager,Enabled
iDRAC,Factory Generated Password
Riser Config 4, 3x8, 4 x16 slots
Broadcom 57412 2 Port 10Gb SFP+ + 5720 2 Port 1Gb Base-T,rNDC
IDSDM and Combo Card Reader
Redundant SD Cards Enabled
32GB microSDHC/SDXC Card, Qty 2
DVD ROM, SATA, Internal
6 Performance Fans forR740/740XD
Dual, Hot-plug, Redundant Power Supply (1+1), 1600W, 250 Volt Power Cord
Required for Use
PowerEdge 2U Standard Bezel
Dell EMC Luggage Tag
ReadyRails Sliding Rails With Cable Management Arm
ProSupport: NBD On-Site Service After Problem Diagnosis, 5 Yrs
ProSupport: 7x24 HW/SW Technical Support and Assistance, 5 Yrs
32GB RDIMM 2666MT/s Dual Rank, Qty 16
iDRAC9,Enterprise
Broadcom 5719 QP 1Gb Network Interface Card
Broadcom 57412 Dual Port 10Gb, SFP+, PCIe Adapter, Low Profile
NVIDIA Tesla M60 GPU
C13 to C14, PDU Style, 12 AMP, 6.5 Feet (2m) PC, Qty 2

Nebraska Hall – Full Rack



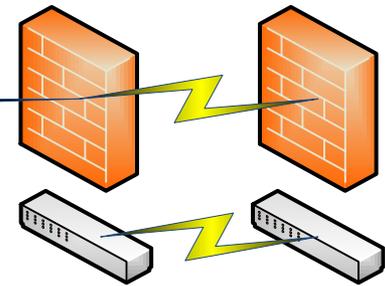
Dell/EMC VXRail



10 Gbps via Windstream

ESU 5 Datacenter

Full VM Backups Stored



Dell R630 Cluster – Equallogic 6100s

