

## ADDENDUM ONE QUESTIONS and ANSWERS

Date: April 12, 2022

To: All Bidders

From: Annette Walton, Procurement Contracts Officer  
AS Materiel State Purchasing Bureau (SPB)

RE: Addendum for Request for Information Number “33022 NPM Media over Managed IP” to be opened April 19, 2022 at 2:00 P.M. Central Time

### Questions and Answers

Following are the questions submitted and answers provided for the above-mentioned Request for Information. The questions and answers are to be considered as part of the Request for Information. It is the Bidder’s responsibility to check the State Purchasing Bureau website for all addenda or amendments.

Question Number	RFI Section Reference	RFI Page Number	Question	State Response
1	D	5	Regarding the System Simplified Diagram, is the intention to leverage leaf switches as traditional input and output leaves for edge device connectivity in a unidirectional fashion, or in a true spine/leaf architecture leveraging up and down link for router inputs and outputs?	True Spine/Leaf Architecture
2	A	4	Does the need for audio shuffling exist in the system requirements? The Benefits section outlines the statements “No more audio embed/de-embed” and “No more audio shufflers,” whereas network-attached devices are traditionally included in ST2110 systems to perform mono-channel breakaways either at the edge, or within the core.	No Audio Shuffling Needed. But we need to Map audio on incoming sources.
3	A	4	Can you clarify the statement “Distributed IP Engines” as it pertains to the system design	Redundancy

			in respect to expected behaviors?	
4	A	4	Benefit #9 includes the statement “Built in “Up/Down cross conversion.” Can you clarify the expectation as to where the functions of up/down conversion may take place, such as network-attached edge devices, or within the networking core itself? What is the expected conversion channel capacity/quantity? What types of conversion are required?	We need to have some up/down conversion available. Whether that is built in or an external device.
5	C	5	Can you clarify the expected SDN-specific functionalities within the networking and control system design?	We send out our TV stream via ISP terrestrial fiber to our transmitting facilities. This will include ATSC 3.0. NPM uses Mosaic system for Network management monitoring and control.
6	C	4	Can you clarify the expected control protocols to be used within the IP routing system?	We will need additional consulting by the vendor to help identify our needs.
7	D	5	Are the spine switches expected to cap interface speeds to 100Gb, or is 200Gb and 400Gb acceptable?	We will need additional consulting by the vendor to help identify our needs. For now, use 200GB
8	D	5	Does a preference exist for edge device interface speeds connected to leaf switches, such as 10Gb, 25Gb, 50Gb, 100Gb?	We will need additional consulting by the vendor to help identify our needs.
9	D	5	Are spine switches expected to be co-located within a Central Equipment Room, with leaf switches distributed across a single facility, or spread across in a WAN environment?	Central Equipment Room.
10	D	5	Can you provide link distance between spine and leaf switches?	Approximate 175ft
11	E	5	Can you provide the NMCS monitor and control system currently in use within the facility, as well as a list of supported APIs in order to	Mosaic system at <a href="https://www.mncsoftware.com/">https://www.mncsoftware.com/</a>

			pass information northbound from the network and control system?	
12	F	3	Can you provide expected dates of purchase and implementation of the routing system?	2023
13	A	4	Do you need continuous 100% resource availability for 100% peak performance?	Yes
14	C	4	Can you please provide details about the signal conversion quantities? For example: IP Conversion (to/from SDI) – Amount ? Formats ? The same thing for MADI, Zixi and any other formats applicable? This is important as we must design a solution using a combination of edge devices with different capabilities.	The plant is currently all SDI with a mixture of SD & HD signals. All signals will need to be converted. Zixi format.
15	C	4	Are there any video/audio signal monitoring or multiviewing requirements for this project? Such as output heads, PIPs, formats, Tally, Control, etc.?	Yes. Monitoring plus Multiviewers Not sure on additional control at this time. We need vendors input.
16	III.B	4	Are we to assume a router size of 256x192 for Quoting purposes.	256X256
17	III.B	4	How many of these signals will be native IP (Assuming SMPTE 2110-20 as the IP format).	None at this time. But will be added as time goes on.
18	III.B	4	How many of these signals will be SDI requiring Gateways.	512
19	III.A.6	4	Regarding Distributed IP Engines, how many I/O signals will be located in a single centralized area (CER)	All of them
20	III.A.6	4	Regarding Distributed IP Engines, how many different locations with IO access will be required and how many signals in each of these locations	We will need additional consulting by the vendor to help identify our needs.

21	III.A.6	4	Will you require ST 2110 signals transported directly to the Displays and if so SDI or HDMI format and QTY of Displays	Both. We do not know the number of displays.
22	III.A.9	4	What would be the Maximum of UDX converters required at one time	We are not doing UDX at this time.
23	III.A	4	Will you require MultiViewers and if so, how many discrete heads (outputs) and how many PiP's per output	We currently use approximate 15 outputs at various configurations. We will need additional consulting by the vendor to help identify our needs.
24	III.A.8	4	Assuming 2022-7 Redundancy	Yes
25	III.C	4	You mention AES67 Audio Format, will this be specifically ST 2110-30, ST-2110-31 or other?	We will need additional consulting by the vendor to help identify our needs.
26	III.E	5	Will you require NMOS Control for the system (Video and Audio) and if not what protocol	Yes. We will need additional consulting by the vendor to help identify our needs.
27	III.E	5	Will you require Video Compression for internal Network use and/or for distribution of signals off-prem	No
28	III.E	5	If so what max QTY of signals at a given time and will this require JPEX XS, J2K or other, please specify	Unknown
29	III.E	5	Do you have any HDR requirements? If so please specify	Not at this time. We will need additional consulting by the vendor to help identify our needs.
30	III.D	5	Should the vendor be providing the Network Switches or will NPM be purchasing the network switches themselves? Should Switched be included in the pricing estimate?	Please Make this an optional line item.
31	III.B	4	Are we to assume a router size of 256x192 for Quoting purposes.	256X256
32	Network		<input type="radio"/> Is the media network included in the scope of this project? <input type="checkbox"/> If Yes, do you have a preference on network Vendor?	Please clarify your question. if cable wiring, NO.

33	Network		o Does the system need to be 2022-7?	Yes
34	Video		o What is the production format?	Currently HD-SDI & Avid Dnx
35	Video		o Of the 256x192 is there any Make Before Break requirements?	Yes
36	Video		o Does there need to be a Multiview as part of the provided solution?	Please provide as option.
37	Video		o Is there any need for Processing? (Color Correction, Up/Down Cross, Frame Sync)	Yes all sources
38	Video		o Are there any compressed streams?	No
39	Audio		o How many Channels of audio per stream?	Currently 6, future at least 16
40	Audio		o Are there any other audio protocols that needs to be interfaced?	Unknown
41	Audio		o Do you need to shuffle audio? <input type="checkbox"/> If yes, how granular do you need to shuffle? (Mono channels?)	No but there will be a need to map audio on sources
42	Audio		o How many Madi channels need to be accounted for?	Unknown at this time.
43	Anc		o Are there any 211	None at this time.
44			Distance of longest fiber run?	Unknown
45			Quantify and describe locations (such as studios) with concentrations of SDI devices connected to the core via fiber?	None
46			Paths of Up/Down/Cross conversion (SD<->HD)?	We will need additional consulting by the vendor to help identify our needs.
47			Paths of Up/Down/Cross conversion (HD<->UHD)?	We will need additional consulting by the vendor to help identify our needs.
48			MultiViewer sizing: Simultaneous unique inputs across simultaneous unique output mozaics?	We will need additional consulting by the vendor to help identify our needs.
49			Will the routing core be normalized to one format, or will SD/HD/UHD coexist throughout the system?	Multiformat. SD/HD/UHD should coexist throughout the system.
50			How many ST-2110 endpoint devices are anticipated to be	Zero

			in use on the day of deployment?	
51			Of these ST-2110 endpoint devices, what is their interface? For example, 10g, 25g, etc.	We will need additional consulting by the vendor to help identify our needs.
52			Is there a desire to bring in analog sources? How many?	No
53			Is there a preference of IP Switch manufacturer (Cisco or Arista)?	Arista is the preference. We want to learn more about Cisco.
54			How is HDR going to be processed in this application for future initiatives like ATSC 3.0.	Unknown
55			Quantity of UHD SDI inputs and outputs requiring gateway to ST 2110?	Unknown
56			Quantity of HD SDI inputs and outputs requiring gateway to ST 2110?	Less than 512.
57	D	5	Will any broadcast endpoints be connected directly to spine?	We will need additional consulting by the vendor to help identify our needs.
58	C	5	Do we expect any single homed "purple" devices?	We will need additional consulting by the vendor to help identify our needs.
59	C	5	Will there switches dedicated to low bandwidth devices, such as audio mixers?	Unknown. We use Telos Axia at this time.
60	D	5	Is there a breakdown of number of endpoints based on interface connectivity? 1Gb vs 10Gb vs 25Gb vs 40Gb vs 100Gb	We will need additional consulting by the vendor to help identify our needs.
61	D	5	On the network conceptual, what does Leaf IN 1-96, etc refer to?	1-96 inputs
62	E	5	is there an existing management and control network? If so, please describe?	No
63	E	4	based on the number of broadcast endpoints and I/o is there a percentage requested for future expansion?	Unknown
64	C	4	is this a fully redundant 2022-7 network?	Yes
65	D	5	Will this be a single mode or multimode facility?	We use Both
66	D	5	Will spine(s) and leafs be located in the same rack room or distributed? If located near one another, can AOC/DACs be used instead of fiber and optics?	All will be in the adjoining racks. Not far distances from each other.

This addendum will become part of the Request for Information and should be acknowledged with the Request for Information response.