

**Supply, Installation and Commissioning of
Primary Site Data Center In-Row Cooling Solution**

ANNEX 1

**SECTION A
SCOPE OF WORK**

Under the National Single Window project, Tradenet has established a data center. This RFQ invites suppliers to supply, install and commission the primary data center in-Row cooling solution and install power distribution box for the cooling units, servers and UPS. The supplier should be an experienced systems integrator with a thorough knowledge and understanding of such systems and should have a background in installation, supplying and maintaining of such.

Suppliers should be perfectly positioned to deliver the solutions for high-density IT deployments and support on-going maintenance and management services in order to help to reduce the threat of systems downtime, mitigate the risk of thermal shutdown and keep facilities operating optimally.

By the time of delivery and installation, the system should work without any faults.

#	Description	
1	Supply, Installation and Commissioning of Primary Site Data Center In-Row Cooling Solution for Tradenet.	
	InRow, 300mm, Air Cooled High Available Solution	
	InRow OA End Aisle Containment	
	NetShelter SX 42U 600mm W x 1070mm Deep Enclosure	
	Installation of Power distribution BOX	
	2-Year Preventive Maintenance Contract for full system	
	On-the-Job Training for 02 Maintenance Personal of Tradenet	

A1) Planned Data center layout

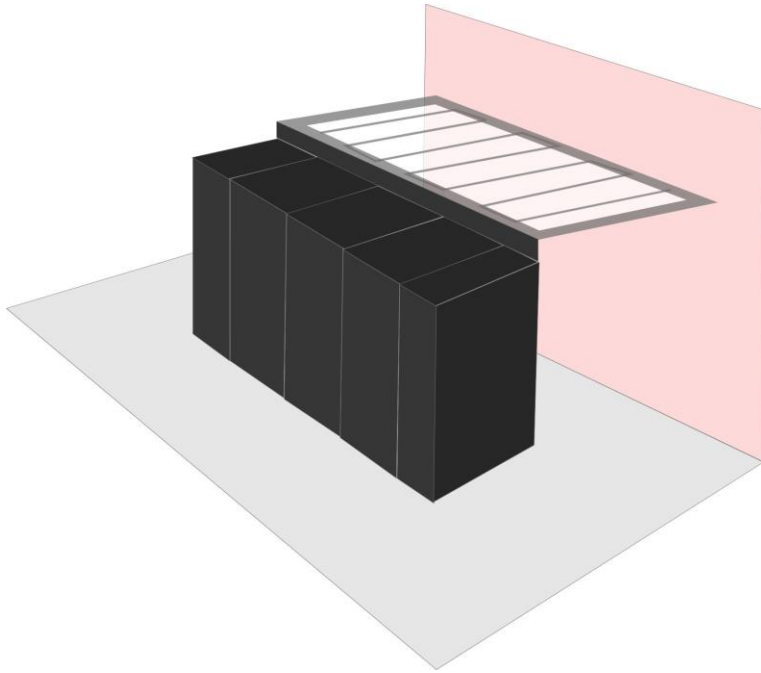


Figure A1: Planned datacenter layout with equipment rack and heat density.

**The supplier shall provide proposed data center layout drawings with cooling as part of the bid.

A2) Planned datacenter rack layout details as follows:

- 01 x APC Schneider Electric 42U Rack | Server & SAN Storage Rack (already available in TradeNet)
- 01 x APC Schneider Electric 42U Rack | Network Communication Rack & UPS (already available in TradeNet)
- **01 x 42U Rack | TradeNet Network Communication & Server**

A3) The design shall include

Hot-Aisle Containment Solution, incorporating 2 In-Row units to optimize power and cooling. A key component of this architecture is its close-coupled cooling design principle which locates cooling equipment close to the heat source ensuring that heat removal can be more efficient and predictable. The Hot Aisle Containment System encloses an aisle to collect and cool equipment exhaust, making it available for cool air intakes. This creates a self-contained system capable of supporting high power density loads.

The heat being produced from the IT equipment is contained within the Hot Aisle Containment, then removed via In-Row Cooling unit.

A4) Installation, Configuring and on-the-job training

a) Installation and Configuration of In-Row Cooling System

- Installation and Configuring of two (2) nos of In-Row Cooling System.
- The initial inspection to ensure that the cooling unit has been properly installed, the location of the cooling unit has been properly prepared, and the cooling unit is free of damage.
- Incoming voltages match the phase and voltage listed on the name plate.
- Electrical wiring complies with local and national codes and regulations.
- The cooling unit is properly grounded.
- Confirm that the power supplies are seated properly and fully engaged.
- Electrical connections are tight, including contactors, terminal blocks, controllers, switches, relays, auxiliary devices, and field connections.
- A mechanical inspection which verifies that all mechanical components and connections are secure and tight and ready for start-up and system charging. The inspection ensures that field piping is properly installed to promote oil return to the compressor.
- Pressure relief valve is installed in accordance with the installation manual as well as local and national codes and regulations.
- Piping in the building and on the roof is properly insulated.
- The rack temperature sensors, flood receivers must be installed correctly. And should work as per normal operational expectations.
- The network port is connected correctly, and an IP address has been assigned to the equipment.
- Use the cooling group configuration settings to add cooling units to the group and to define group operation.
- The start-up inspection to ensure that the cooling unit is operating properly after the initial start-up. This inspection verifies that all modes of operation are working correctly, and that the cooling unit is ready for normal operation.
- All work must be performed by trained service personnel.

b) Installation of power distribution box

- Datacenter DB must be isolated from main building wings.
- Check electrical wiring complies with local and national codes and regulations.
- Check incoming voltages match the phase and voltage listed on the name plate.
- 2 X 32A RCCB Provisioning for Cooling Units.
- 2 x 32A RCCB Provisioning for UPS Units.
- All work must be performed by certified personnel.

c) Provisions of operational support

- Provision of operational support for cooling system

A5) Sign-off documentation

Preparation of sign-off documentation relating to the provided services and shall present to TradeNet Data Centre Team. By the time of signing, the scope of work mentioned in this document shall fully be completed.

A6) Preventive maintenance of the system

Maintenance of equipment such as power backup and cooling systems to ensure maximum performance. The service shall be provided for a minimum of two (2) years period

A7) Preventive maintenance service

- Check for environmental damage (dirt, dust, debris, liquid stains) around the cooling unit installation area.
- Part of maintaining the system is ensuring the unit is operating with the most recent firmware version. Firmware upgrades should be provided at no extra charge. All Preventive Maintenance contracts should include free firmware upgrades.
- During each preventive maintenance visit, field service engineers should run tests to verify the system is functioning correctly in all operational modes, stopping problems before they start.
- Provides a detailed report of work performed including recommendations for service to ensure optimal performance
- It is mandatory that the supplier shall follow a well-defined set of processes and procedures to be able to provide quality services, as per industry standard.
- The supplier shall stock and provide adequate onsite and offsite spare parts and spare components to ensure that the Uptime commitment is met during the maintenance period.
- The supplier shall have back to back SLA with the manufacturer of the supplied systems to ensure timely supply of spares and technical support.

A8) Incident Management

Capturing and reporting of incidents, problem analysis, categorization (critical or non-critical) and instant escalation of alerts to Tradenet Data Center Team.

A9) Service level expectation

- The supplier will have to provide the mobile number of a Single Point of Contact and a backup contact person to facilitate immediate contact by TradeNet's representative and shall be responsible to liaise with all vendors for rectification of faults within the next business day.
- Defective equipment shall be replaced by the supplier at his own cost, including the cost of transport if any.
- The supplier shall provide all normal toolkit and test equipment needed for the maintenance of the hardware.
- System Maintenance & Support services expectations:
 - 8 x 7 online support
 - Issue resolution / Onsite visits **within 1 hour**.
 - Local TAC support plans must be maintained by the supplier for the maintenance period.

SECTION B
TECHNICAL REQUIREMENTS

Item	Description	Qty
1.	<u>Supply, Installation and Commissioning of Primary Site Data Center Cooling Solution for Tradenet</u>	
	InRow RD, 300mm Cooling System which will support the existing hardware with :	
	InRow, 300mm, Air Cooled, 220-240V, 50Hz <ul style="list-style-type: none"> ● Nominal Input Voltage 200V , 208V , 230V ● Input frequency 50 Hz ● Input Power 4400.0 Watts ● Control panel Multi-function LCD status and control console ● Audible Alarm Audible and visible alarms prioritized by severity ● Air Discharge Patterns Horizontal ● Air Flow 1080.76 lps ● Compressor Type Scroll ● Condensate Pump Capacity 0.002 lps ● Intake Air Rear Return 	2 Nos
1.1	Leak Sensor - 20 ft (6.1 m)	2 Nos
	Flooded Receiver, 6" Diameter, 18" Length	2 Nos
	Condenser, 1 Fan, Single Circuit	2 Nos
	Isolation Valve Assemblies	2 Nos
	<u>Installation, Commissioning and Maintenance</u> <ul style="list-style-type: none"> ● Provide all materials & labor ● 2 Years Hardware Maintenance Service ● 2 Years Hardware Repair or Replace Warranty ● Including On-the-Job Training ● All work must be performed by trained service personnel 	
	InRow OA End Aisle Containment	
	Ceiling Panel Mounting Rail - 600mm	03 NOS
	Ceiling Panel Rail - 300mm	02 NOS
	Ceiling Panel Rail - 100mm	02 NOS
	Ceiling Panel Wall Mount - Single Row - 1800mm	04 NOS
1.2	Ceiling Panel - 1200mm	04 NOS
	InRow OA End Aisle Containment kit - 42U	02 NOS
	Curtain Door Mounting Rail, 900 - 1200mm aisle width	02 NOS
	<u>Installation and Commissioning</u> <ul style="list-style-type: none"> ● Provide all material and labor ● 2 Years Hardware Maintenance Service ● 2 Years Hardware Repair or Replace Warranty ● All works must be performed by trained service personnel 	

	NetShelter SX 42U W600mm x D1070mm Deep Enclosure	
	NetShelter SX 42U 600mm x 1070mm enclosure with sides	02 NOS
	1U 19" Airflow management blanking panel (100 Nos)	01 NOS
	Rack PDU 2G, Metered, zeroU, 32A, 230V	04 NOS
	RACK ATS, 230V, 16A, C20 IN, (8) C13 (1) C19 OUT	01 NOS
	NetShelter Cable Management, Cable Trough, Open Bottom, 600mm	06 NOS
	NetShelter Cable Management, Cable Trough, Open Bottom, 300mm	04 NOS
	NetShelter Cable Management, Power Cable Ladder, with Ladder Attachment Kit	02 NOS
	All required power cords	
1.3	<u>Installation and Commissioning and maintenance</u> <ul style="list-style-type: none"> ● Provide all material and labor ● 2 Years Hardware Maintenance Service ● 2 Years Hardware Repair or Replace Warranty ● All works must be performed by trained service personnel 	
1.4	Full-system preventive maintenance Minimum of 2 years of maintenance of equipment such as power systems and cooling systems to ensure maximum performance.	
1.5	Fabricate and Installation of Power distribution BOX for the data center <ul style="list-style-type: none"> ● All work will be performed by certified personnel. ● Check electrical wiring complies with local and national codes and regulations ● Check incoming voltages match the phase and voltage listed on the nameplate ● 2 X 32A RCCB Provisioning for Cooling Units ● 2 x 32A RCCB Provisioning for UPS Units ● Datacenter DB must be isolated from main building wings. 	

SECTION C
PRE-QUALIFICATION

Parties interested to deliver the scope of work outlined in Section A of Annex I, shall meet the below technical specifications;

a) Experience.

Proof of supply of similar items to other organizations within the last 5 years. (Bidders should submit purchase orders or letters from organizations mentioning successful delivery.)

b) Delivery & Installation Duration

Delivery and installation should be completed within a maximum period of 60 days from the receipt of the purchase order.

Firm that does not manufacture or produce the goods it offers to supply shall submit the Manufacturer's Authorization Letter, to demonstrate that it has been duly authorized by the manufacturer or producer of the goods to supply and install the goods and service in the Republic of Maldives.

c) Compatibility

The data center currently has an APC Netshelter SX 42U x 2 and APC UPS. The proposed equipment, as well as the hardware exterior and software, must be fully compatible with the existing hardware and software. The proposed solution must be able to work in line with current hardware. In any case, if the items do not appear to be complementary to the existing infrastructure, the proposals may be disqualified.

d) Resources

Supplier shall maintain all the necessary resources on-site during all stages of the project that requires closer interaction with TradeNet during installation, configuration and testing.

The supplier MUST have at least One (1) full time trained service personnel under its payroll for cooling and power. It is **mandatory** for the supplier to attach a professional certificate of the engineer and other related reference documents. The supplier shall submit the following documents:

- a) Certification copies of the relevant training.
- b) Letter from organization that the engineer is employed at that organization.
- c) ID card OR passport copy of the engineer.
- d) Contact information of the staff and his/her supervisor in that organization.

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