Modular Scalable Industrial Edge Micro Data Center Enclosure Requirements Presentation

3/3/21

BACKGROUND

- Industrial Edge Solution may not have the benefit of a “clean” surrounding environment.
- Comprehensive solution(s).
- Solution will not require a dedicated room envelope.
- More efficient and faster deployment.
- Provide Scalability, Modularity, Flexibility and Availability.
- Innovative idea with several solution options.
- Proactive not Reactive approach in order to get ahead of the need.
- Intent to be in touch with customer needs and challenges.
- Will provide availability at the global level.

NEW SOLUTION METHODOLOGY

- Vendors / Suppliers will be solicited to provide a pre-fabricated / pre-assembled solution (5kW to 60kW Range)
- Scalable All-in-One “Drop-and-Go” Solution:
  - Space for IT equipment, power and cooling, fully self-contained (plus access clearances required).
  - Enclosure Envelope (Industrialized NEMA-4 rated requiring minimal footprint for dedicated space).
  - Power (leverage existing already available rack-mounted UPS systems).
  - Cooling (leverage existing already available equipment footprint).
  - Fire Protection / Detection (clean agent suppression).
  - Security (key lock or optional access control system with card and/or biometrics).
  - Reduces latency.
  - IT Infrastructure (utilizes EIA 310 specification plus vertical and horizontal cable management).
  - Decreases overall solution cost(s) and schedule of deployment.
  - Modular in concept that can grow depending on level of reliability.
  - Pre-fabricated enclosures assembled on-site.

INDUSTRIAL EDGE MICRO DATA CENTER

- Facility Requirements:
  - Level floor surface.
  - Base Building interface that must be brought to the enclosure:
    - 208V power (normal and standby (if available)).
    - Network fiber.
    - BMS connectivity.
    - Connection from building fire alarm control panel.
  - Remote heat rejection location must be identified.
  - Requires 48” front, rear, and one-side service clearance.

INDUSTRIAL EDGE DATA CENTER CRITERIA (STANDARD OPTIONS)

- Small: 3 IT Rack Enclosures – 4-5kW per Rack – (3) Levels of Reliability
- Medium: 4-8 IT Rack Enclosures – 4-5kW per Rack – (3) Levels of Reliability
- Large: 8-12 IT Rack Enclosures – 4-5kW per Rack – (3) Levels of Reliability

* Standard options fall within the range.

RELIABILITY LEVELS

The following outlines the electrical/mechanical topology of the three (3) levels of reliability:

- Reliability Level 1:
  - Single UPS
    - "A"-side power from UPS
    - "B"-side power from normal Utility source
  - N Cooling
- Reliability Level 2:
  - Modular N+1 UPS
    - "A"-side power from modular UPS
    - "B"-side power from normal Utility source
  - N+1 Cooling
- Reliability Level 3:
  - 2N UPS
    - "A"-side / "B"-side UPS
  - N+1 Cooling

* Note: Generator power is based on facility and is not included in the three (3) reliability levels.

3-RACK INDUSTRIAL EDGE RENDERING

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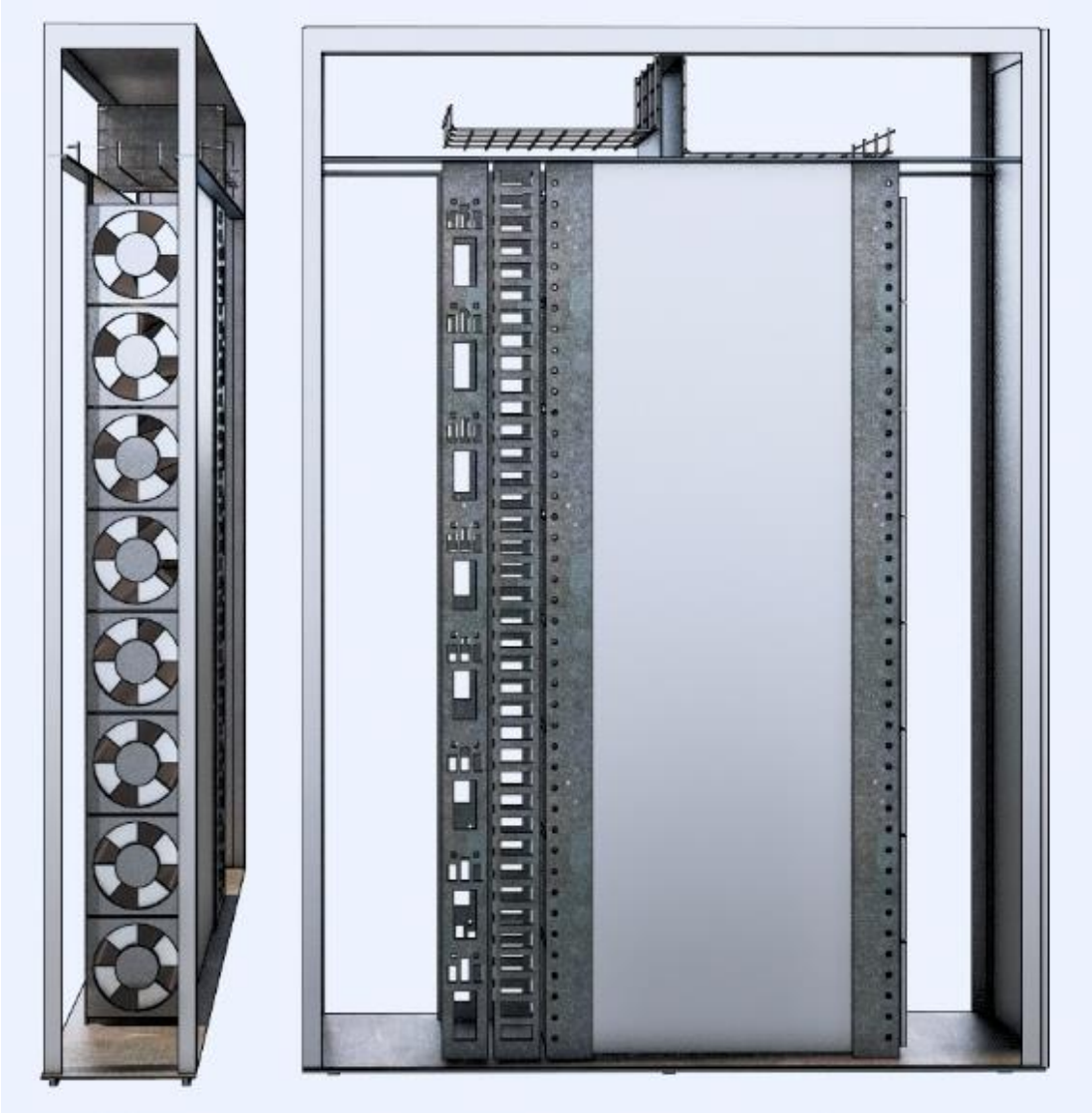
IT SERVER/NETWORK ENCLOSURE

COOLING ENCLOSURE



UPS/POWER PANEL ENCLOSURE

UPS/POWER PANEL/FIRE SUPPRESSION ENCLOSURE

Questions