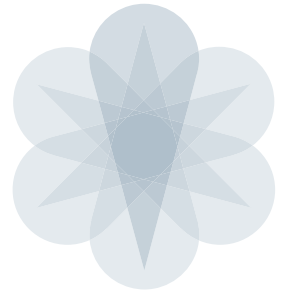


26 July 2013



VIA ELECTRONIC MAIL

Mr. Robert Meyers
Product Manager
Energy Star Data Center Products
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: Energy Star Specification for Large Network Equipment

Dear Mr. Meyers:

On behalf of Juniper Networks, I am submitting these comments in reference to the U.S. Environmental Protection Agency's (EPA) effort to develop a specification and test method for Large Network Equipment (LNE). These comments pertain to the EPA's response to the Discussion Draft comments that presumably underlie the June 13, 2013 Framework Document and Draft 1 Test Method.

At the outset, we remain concerned with the EPA's decision to delineate LNE based on the number of ports a device has. We believe this characteristic, as opposed to performance, is irrelevant to whether a device is intended for carrier/enterprise systems or home use.

I. Definition of Idle

In its response to Discussion Draft comments, the EPA maintains that, during the Very Low Utilization test run (which replaced the idle test run), the Unit Under Test (UUT) needs to "be able to process sporadic traffic" but "does not have to be able to transition to full traffic immediately".

This language is inconsistent and contradictory to Items 22 (Energy Efficiency – System Level) and 25 (Metrics – TEER) in the EPA response to comments as it can be interpreted as allowing the processing capacity of the UUT to degrade. In the response to Item 22, the EPA maintains the EPA is "not looking to encourage sleep functionality that results in performance degradation."

It is important to understand that the ability to handle "sporadic traffic" is equivalent to be able to return to a full capacity instantly. If the latter is not a strict requirement, the UUT may choose to transition into a state where only a nominal capacity is maintained, albeit all ports may remain active. Whether such behavior is the default or needs to be programmed is not relevant to the distinction.

This is a primary reason why both ATIS-0600015.03.2013 and ITU L.1310 describe variable-load and idle-load clauses separately and use two separate metrics to track them.

The EPA's decision to conflate real-time (RT) and non-real time (non-RT) states means there will be no consistency in results as vendors will be inclined to provide aggressive non-RT energy features "out of the box" to get better ratings, features that will be disabled immediately by users as unpractical. It is important to remember that network devices are the opposite of PCs in the time domain as no user input can be delayed and any unprocessed traffic is lost.

III. Metrics

With respect to metrics, the EPA stated it had not included efficiency metric in the Draft 1 Test Method. This position significantly weakens the efficiency argument because without metrics UUT's remain incomparable.

For example, let us assume we measured system A @ (X Gbps , Y watts) and then measured system B @ (M Gbps, N watts). If $X \neq Y$, which system is more efficient? This is not evident from the disclosure until an efficiency measure (W/Gbps) is produced. In an equivalent automobile case, not having a metric would imply reporting the amount of gasoline used for a random path. If model 1 uses four gallons between San Francisco and San Jose and model 2 uses half a gallon between Brooklyn and Queens, which car is more efficient?

Our recommendation is for the EPA to maintain metrics as a key reporting tool, similar to mpg.

III. Categorization of Modular v. Fixed

Finally, we remain unclear as to the EPA's decision to focus Energy Star efforts on fixed systems and to leave modular systems to a data reporting process.

As there are no true boundaries between "modular" and "fixed" products, Juniper believes it would not be prudent to maintain this distinction throughout the effort. This is because most fixed products provide at least some degree of modularity (such as pluggable transceivers) and a significant number of modular products also have cheaper fixed versions. Avoiding the discourse on modularity altogether does not make the specification simpler, because even desktop Ethernet switches may have some pluggable elements.

In our view, the question is not whether the EPA should consider modular products per sé but rather how the EPA should reflect the variability of pluggable items in a Power and Performance Data Sheet (PPDS). Juniper's stance is that it should be enough for the EPA to require a vendor

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to list all installed components whenever the components have different and independent catalog codes (stock keeping units).

In closing, it was rather disconcerting to learn that the EPA decided to forego referencing the ECR specification from future LNE documents. Although quoting the research is not critical for an EPA LNE specification, the ECR Initiative is a joint effort that was pivotal for developing test specifications. In its Preliminary Testing Approach, the EPA noted that the ATIS and ECR publications were consistent; this is due in large part to the fact that ATIS based its procedures on ECR methodologies.

Thank you for your consideration of our views on this important initiative. Should you have any questions regarding this submission, please feel free to contact me at (571) 203-2687 or rdix@juniper.net.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Dix, Jr.", with a stylized flourish at the end.

Robert B. Dix, Jr.
Vice President
Government Affairs and Critical Infrastructure Protection