Energy Efficient Ethernet Transparent – not invisible

Some important considerations for management of EEE

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Transparent, not invisible

"The transition to and from the lower level of power consumption should be transparent to upper layer protocols and applications"

This means that we can change into and back out of power saving modes without disrupting or adversely effecting the applications that are running.

It does not mean that we are hiding the function from management or control entities that are interested in it.

We need to define the management view of EEE

This means we need to anticipate what information will be needed;

… and we need to anticipate how it will be used.

This presentation will cover strawman MIB objects

Along with strawman applications using them

PLUS a new objective for the Study Group to consider

Capabilities and control

The first aspect of management covers the capabilities

Systems must be able to advertise what is supported

This includes all options or parameters that we define

In addition, the functions must be controllable

A master on/off for EEE function…

… and controls for optional functions where appropriate

Historically this management is defined in our MIB

Clause 30 – not based on widely used standards

"Volunteers" use this to define SNMP and other functions

Status and operation

At any point in time, management must be able to see status

- Current power state etc.

- Statistics – number and type of changes…

- … maybe cumulative time in states

In order to operate, some interfaces may be defined

- e.g. Clause 22 or Clause 45 register access for PHYs

- This may include some of above information …

- … and other controls to be used during operation

Careful thought for interactions that cross mgmt boundaries

- e.g. a packet protocol requiring PHY registers to be written

- General rule – management has no timing constraints

Examples (I)

Clause 30 objects for EEE capable port;

    Speeds supported for downshift;

    Corresponding enable/disable for each

Additionally, shift characteristics

    Downshift time and upshift time for each speed

    Could be defined as fixed value or inserted by system implementation

    Visible by external management and discovery

At a minimum, LLDP TLVs to be defined for these

    Enables simple discovery

Examples (II)

State, statistics in Clause 30

> Current state, count of number of shifts to each speed…

> … cumulative time (bit times?) in each state

State and statistics in Clause 22 / 45

> Unsure how much must be in PHY ????

PHY control in Clause 22 / 45

> State change request, status complete indication

> More to be considered – needs examination of baseline

In conclusion

Baselines considered in the TF must include management

  TF review cannot complete without it

Some aspects of management are dependent on proposals…

  e.g. control registers

… others aren't

  e.g. state and statistics

Propose that the study group adopt an objective

  Management definitions must be complete before starting WG ballot

Questions…

… or comments