campus energy monitoring system

Using energy efficiently in an education institution is a must for many reason, not just to reduce the the electric bill but a campus should be a good model for the society

Electric power is the main source of energy to support campus activity which are used for lighting, air conditioning, office and laboratory electrical equipment etc

Most of electric energy in this country sourced from coal power plant which contributes to great amount of CO2 emission

a campus becomes low carbon society when electrical energy is used efficiently

Electric power consuming behavior in campus should be monitored to measure how efficient we are

So there is a need for a campus at least a system to monitor electric energy consumption for every part/sectors,for example:

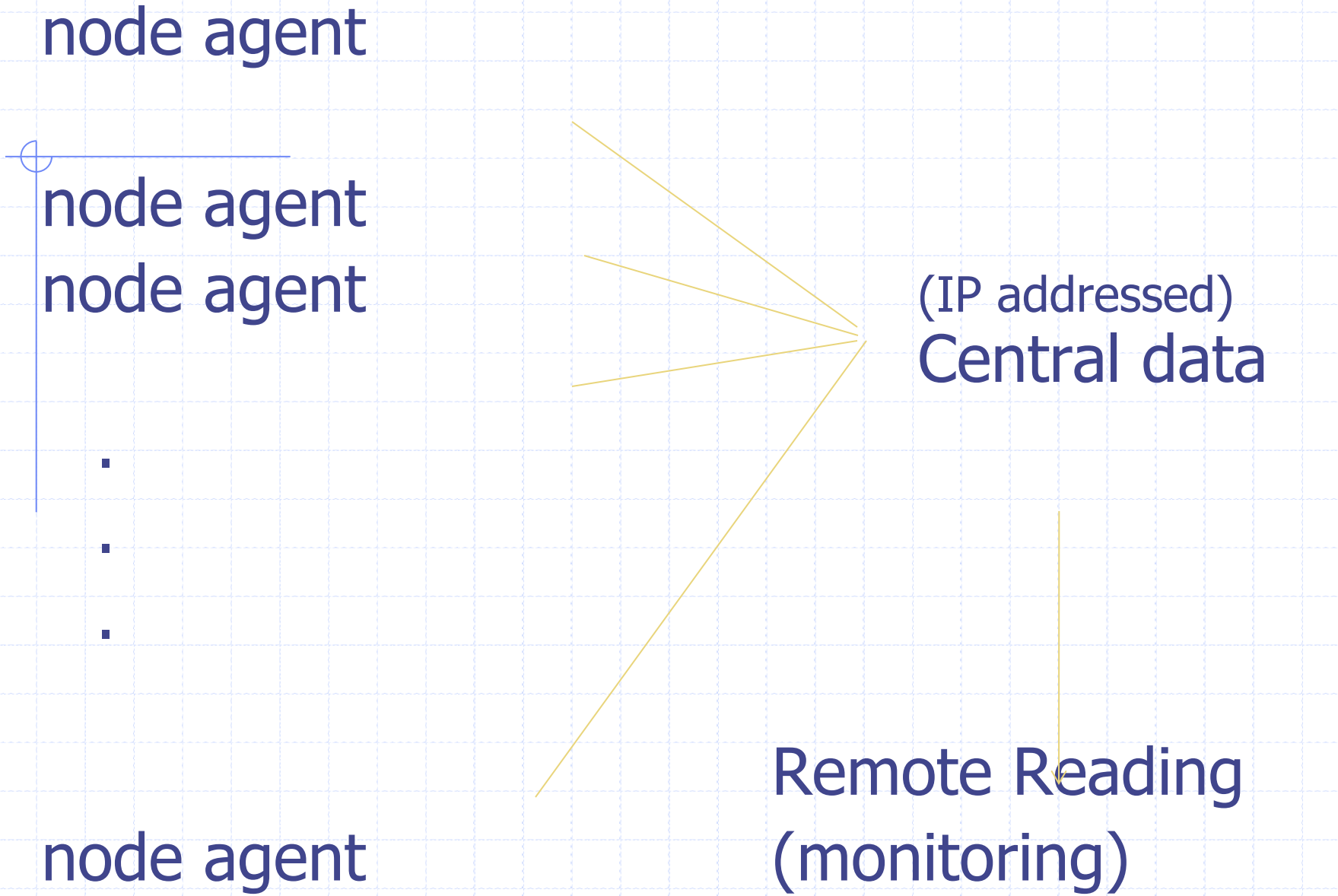
- during the day electrical power for lighting should be low
- For air conditioning, the energy used to lower the room temperature should relates to the ambient temperature
- For computer related facility, data com-munication (intra-internet)the electric power should be comparable to the data (information)transaction

To study the electrical consumption for each part/sectors mentioned above, it required an apparatus that actively measured of electric power nodes of interest and reporting to the facility manager all the time

Experiencing from building a system of measuring atmospheric data automatically via data logger that remotely capable reporting through modem or internet, we can build a similar system that can be applied to measure many power nodes with the help of AC current sensors

a device based on arduino board (versatile microcontroller prototyping) equiped with an ethernet controller will be suitable for the agent of monitoring

Through data streaming to the of the central data (IP addresed) then all information of power used for every nodes becomes available


node agent
node agent
node agent
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node agent
(IP addressed)
Central data
Remote Reading
(monitoring)

- Unfortunatelly the distribution of panel switching in the campus is based on location not by the specific needs

  So it will required many devices (agent) to sample many nodes that represent of each category of electric power consumming behavior

In conclussion , implementation of such system may help the campus to read its electric energy demand and become a useful information to further controlling the electric power wisely pursuing to be efficient