

# Green Usage Monitoring Information Base

<http://www.ietf.org/id/draft-suganuma-greenmib-02.txt>

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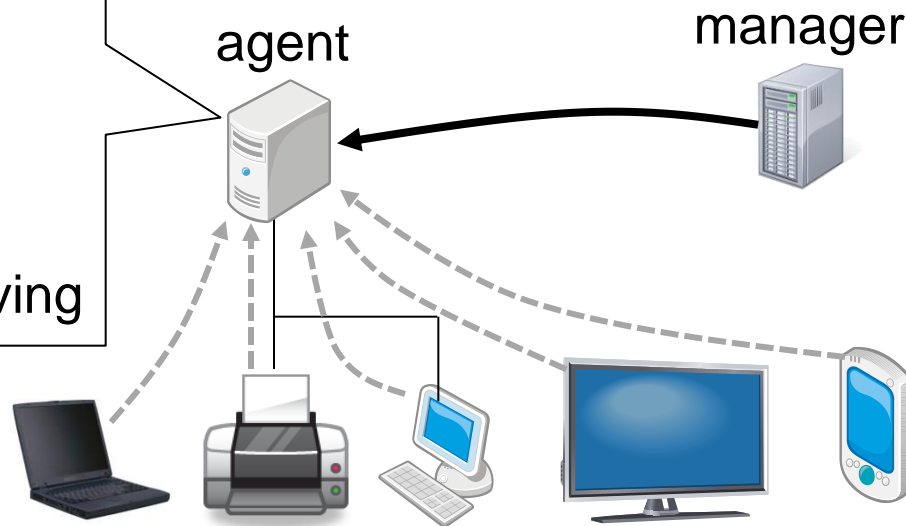
<sup>3</sup> Cyber Solutions

**Only 6 MOs**

- Feature

- **Simple & easy** to use / Generic MIB

- Desktop : power on
    - Printer : power off
    - Laptop : sleep
    - TV : power off
    - Mobile : power saving



- Aim

- Experimental MIB

- Used widely for various experiments
    - Lessons learned from usage

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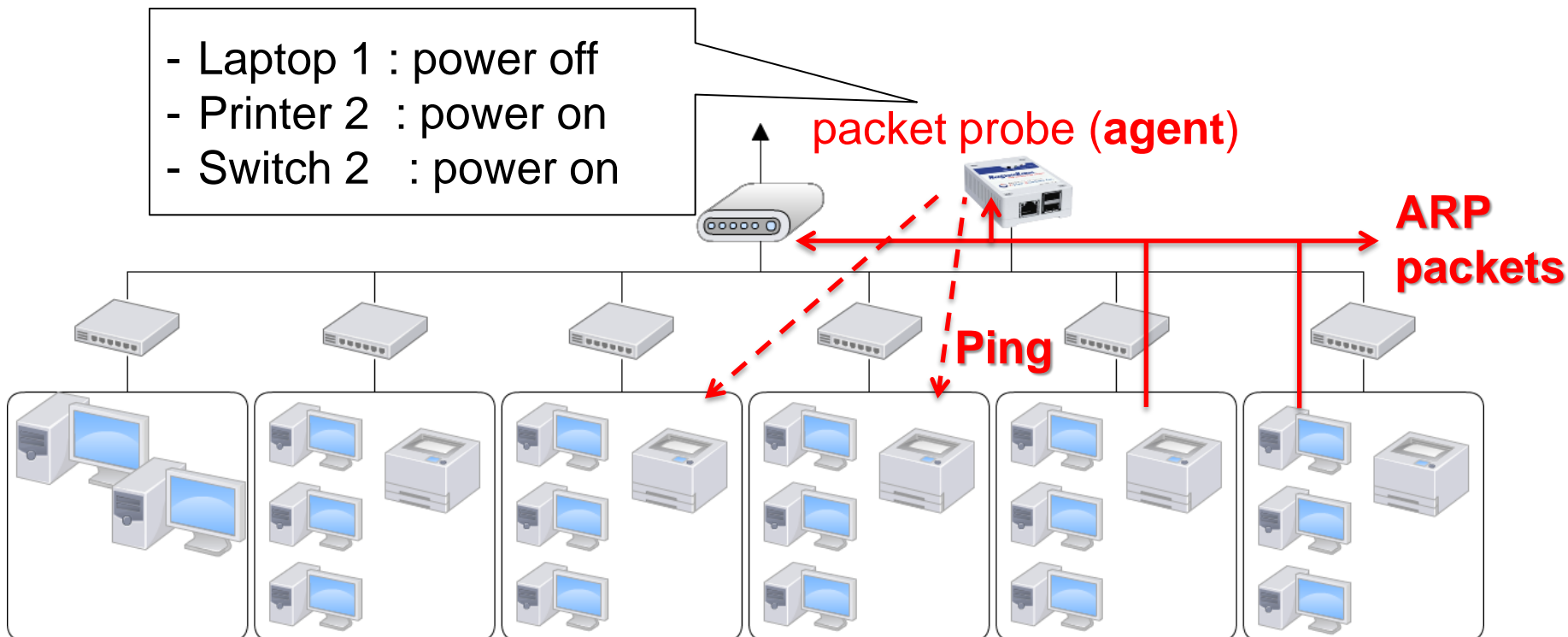
# Usage

- Single use of our MIB
  - Easy to monitor power consumption states for existing network systems without any monitoring devices
  - Estimate status of the device's power ON/OFF based on the device connectivity from our MIB
- Combined use of our MIB and other MIBs
  - Obtain accurate power consumption status of the devices

# Previous Experiment (Reported in IETF 86 Meeting)

- a packet probe as an agent
  - A part of parameters of MIB
    - GumDeviceStatus : powerOn, powerOff
    - GumStatusDetectionMethod : arpSensing, icmpEchoProbing
- Wasted usage of devices could be detected

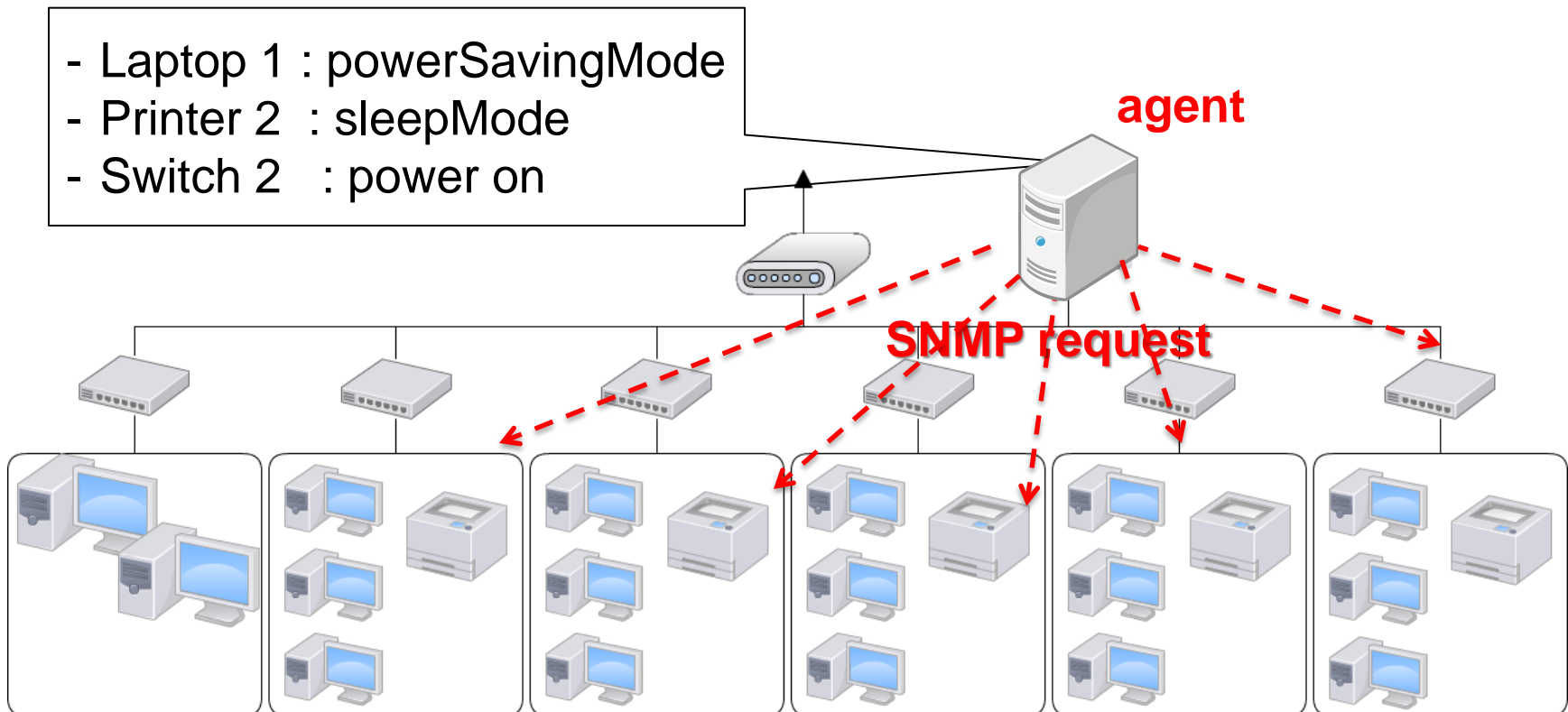
- Laptop 1 : power off
- Printer 2 : power on
- Switch 2 : power on



# Next Experiment Plan

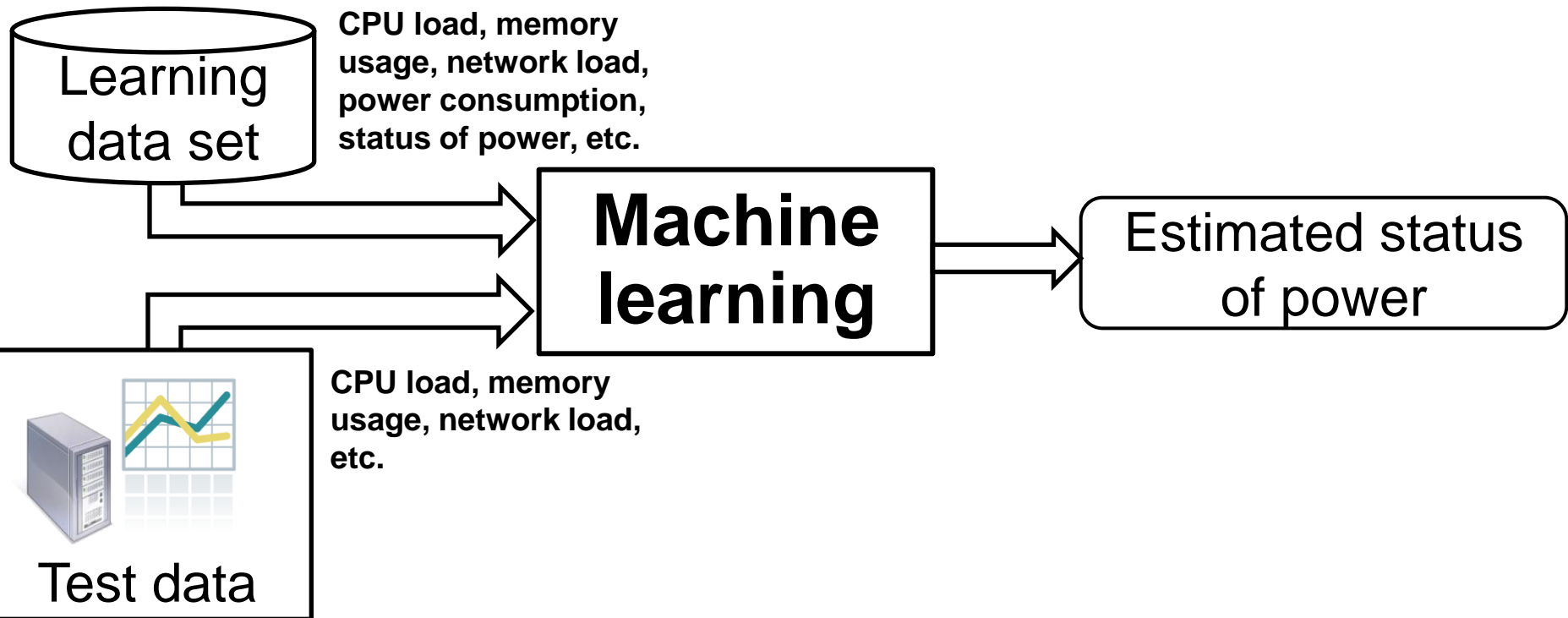
- Estimate more detailed status of power by using machine learning
  - Extend parameters of MIB
    - GumDeviceStatus : powerOn, powerOff, **sleepMode, powerSavingMode**
    - GumStatusDetectionMethod : **switchMonitoring, deviceMonitoring**

- Laptop 1 : powerSavingMode
- Printer 2 : sleepMode
- Switch 2 : power on



# Next Experiment Plan

- Structure of agent



# Next Experiment Plan

- Types of learning data set and test data
  - Level 1: Packet information by monitoring switch
    - GumStatusDetectionMethod : **switchMonitoring**
  - Level 2: Status of device (e.g., CPU load, memory usage, network load) by monitoring devices
    - GumStatusDetectionMethod : **deviceMonitoring**
  - Level 3: Detailed status of device (e.g., CPU load of each running process) by monitoring devices
    - GumStatusDetectionMethod : **deviceMonitoring**

## Next step

- Implementation and experiment report
- Updated version in a few months from now
- Suggestions welcome